

# Oceanographic and Biological Data, Hawaiian Waters, January — October 1959



**SPECIAL SCIENTIFIC REPORT — FISHERIES No. 396**

**UNITED STATES DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE**



United States Department of the Interior, Stewart Udall, Secretary  
Fish and Wildlife Service, Clarence F. Pautzke, Commissioner  
Bureau of Commercial Fisheries, Donald L. McKernan, Director

OCEANOGRAPHIC AND BIOLOGICAL DATA, HAWAIIAN WATERS,

JANUARY - OCTOBER 1959

By

Kenneth Sherman, Fishery Research Biologist  
and  
Robert P. Brown, Oceanographer  
Bureau of Commercial Fisheries Biological Laboratory  
Honolulu, Hawaii



United States Fish and Wildlife Service  
Special Scientific Report: Fisheries No. 396

Washington, D. C.

December 1961

#### ABSTRACT

This report contains the biological and oceanographic data collected during five cruises in the central North Pacific by the Bureau of Commercial Fisheries research vessels Hugh M. Smith and Charles H. Gilbert. Participating scientists collected oceanographic and biological data designed to determine the distribution of surface water types and the associated biota, particularly skipjack tuna Katsuwonus pelamis (Linnaeus). The area investigated was between longitudes 155° and 170° W. at latitudes 15° to 26° N.

## CONTENTS

	Page
Introduction . . . . .	1
Field party personnel. . . . .	1
Field procedures . . . . .	5
Bathythermograph and meteorological observations. . . . .	5
Light penetration and water color . . . . .	5
Zooplankton collections . . . . .	5
Surface fish school, bird flock, and aquatic mammal sightings . . . . .	5
Longline fishing. . . . .	6
Surface trolling. . . . .	6
Tagging . . . . .	6
Laboratory procedures. . . . .	6
Salinity determination. . . . .	6
Phosphate determination . . . . .	6
Zooplankton . . . . .	6
Literature cited . . . . .	7

## ILLUSTRATIONS

Figures 1a-g. Vessel tracks for <u>Hugh M. Smith</u> cruises 50 and 51 and <u>Charles H. Gilbert</u> cruises 44, 45, and 46 . . . . .	2
--	---

## TABLES

	Page
1. Cruise areas and periods . . . . .	8
2. Summary of observations at bathythermograph lowerings, <u>Hugh M. Smith</u> cruise 50 . . . . .	9
3. Summary of observations at bathythermograph lowerings, <u>Hugh M. Smith</u> cruise 51 . . . . .	15
4. Summary of observations at bathythermograph lowerings, <u>Charles H. Gilbert</u> cruise 44 . . . . .	21
5. Summary of observations at bathythermograph lowerings, <u>Charles H. Gilbert</u> cruise 45 . . . . .	27
6. Summary of observations at bathythermograph lowerings, <u>Charles H. Gilbert</u> cruise 46 . . . . .	30
7. Summary of weather observations (USWB 1210-F), <u>Hugh M. Smith</u> cruise 50 . . . . .	34
8. Summary of weather observations (USWB 1210-F), <u>Hugh M. Smith</u> cruise 51 . . . . .	38
9. Summary of weather observations (USWB 1210-F), <u>Charles H. Gilbert</u> cruise 44 . . . . .	42
10. Summary of weather observations (USWB 1210-F), <u>Charles H. Gilbert</u> cruise 45 . . . . .	46
11. Summary of weather observations (USWB 1210-F), <u>Charles H. Gilbert</u> cruise 46 . . . . .	49
12. Light penetration and water color . . . . .	52
13. Zooplankton station positions and sample weights, <u>Hugh M. Smith</u> cruise 50 . . . . .	53
14. Zooplankton station positions and sample weights, <u>Hugh M. Smith</u> cruise 51 . . . . .	54
15. Zooplankton station positions and sample weights, <u>Charles H. Gilbert</u> cruise 44 . . . . .	55
16. Zooplankton station positions and sample weights, <u>Charles H. Gilbert</u> cruise 45 . . . . .	56
17. Zooplankton station positions and sample weights, <u>Charles H. Gilbert</u> cruise 46 . . . . .	57
18. Major zooplankton group composition of selected samples. . . . .	58
19. Record of surface fish school, bird flock, and aquatic mammal sightings, <u>Hugh M. Smith</u> cruise 50 . . . . .	61
20. Record of surface fish school, bird flock, and aquatic mammal sightings, <u>Hugh M. Smith</u> cruise 51 . . . . .	62
21. Record of surface fish school, bird flock, and aquatic mammal sightings, <u>Charles H. Gilbert</u> cruise 44 . . . . .	63
22. Record of surface fish school, bird flock, and aquatic mammal sightings, <u>Charles H. Gilbert</u> cruise 45 . . . . .	64
23. Record of surface fish school, bird flock, and aquatic mammal sightings, <u>Charles H. Gilbert</u> cruise 46 . . . . .	67
24. Summary of longline catch data . . . . .	68
25. Summary of surface trolling catch data . . . . .	69
26. Summary of skipjack tagging . . . . .	70
27. Common and scientific names of fishes reported . . . . .	71

OCEANOGRAPHIC AND BIOLOGICAL DATA, HAWAIIAN WATERS,

JANUARY - OCTOBER, 1959

By

Kenneth Sherman, Fishery Research Biologist  
and  
Robert P. Brown, Oceanographer  
Bureau of Commercial Fisheries Biological Laboratory  
Honolulu, Hawaii

During 1959 there were five cruises in the central Pacific area between latitude 15° N. and 26° N., longitude 145° W. to 170° W. (table 1; fig. 1) by research vessels of the Bureau of Commercial Fisheries Biological Laboratory, Honolulu, Hawaii.

The purpose of these cruises was two-fold: (1) to delineate the boundaries between the North Pacific Central, the zone of intermediate salinity, and the North Pacific Equatorial water types<sup>1/</sup>; and (2) to monitor the seasonal movements of those boundaries and of the associated marine biota, particularly the skipjack tuna, Katsuwonus pelamis (Linnaeus).

The present report contains a record of observed physical and biological data from the five 1959 cruises. They are presented without analysis.

FIELD PARTY PERSONNEL

Hugh M. Smith - Robert E. K. D. Lee, Acting Master

Cruise 50

Gunter R. Seckel, Field Party Chief  
Daniel T. Yamashita, Fishery Research Biologist

---

<sup>1/</sup> Seckel (1961, in press) discusses the difference between water masses, as described by Sverdrup et al. (1942, ch. 15), and water types. He states, "The chief distinction between water types and masses is that the former are under the direct influence of the physical processes taking place at the sea surface whereas the latter are not. One would therefore expect relatively large seasonal temperature and salinity changes in the surface water types. The position of their boundaries would also be subject to changing wind stresses, so that they would not always coincide with the corresponding water mass boundaries."

Arthur O. Oishi, Fishery Aid

Cruise 51

Herbert H. Shippen, Field Party Chief  
Walter M. Matsumoto, Fishery Research Biologist  
Fred Hertlein, Physical Science Aid

Charles H. Gilbert - William T. Tanaka, Master  
Cruise 44

Kenneth D. Waldron, Field Party Chief  
Herbert H. Shippen, Fishery Research Biologist  
Fred Hertlein, Physical Science Aid

Cruise 45

Donald W. Strasburg, Field Party Chief  
Eugene L. Nakamura, Fishery Research Biologist  
Reginald M. Gooding, Fishery Research Biologist  
Robert A. Stevenson, Jr., Fishery Research Biologist  
Heeny S. H. Yuen, Fishery Research Biologist  
Richard J. Hansen, Fishery Aid

Cruise 46

Eugene L. Nakamura, Field Party Chief (Sept. 15-16)  
Donald W. Strasburg, Field Party Chief (Sept. 17-28)  
Richard S. Shomura, Field Party Chief (Sept. 29-Oct. 18)  
Robert A. Stevenson, Jr., Fishery Research Biologist  
Daniel T. Yamashita, Fishery Research Biologist  
Howard O. Yoshida, Fishery Research Biologist  
Richard J. Hansen, Fishery Aid

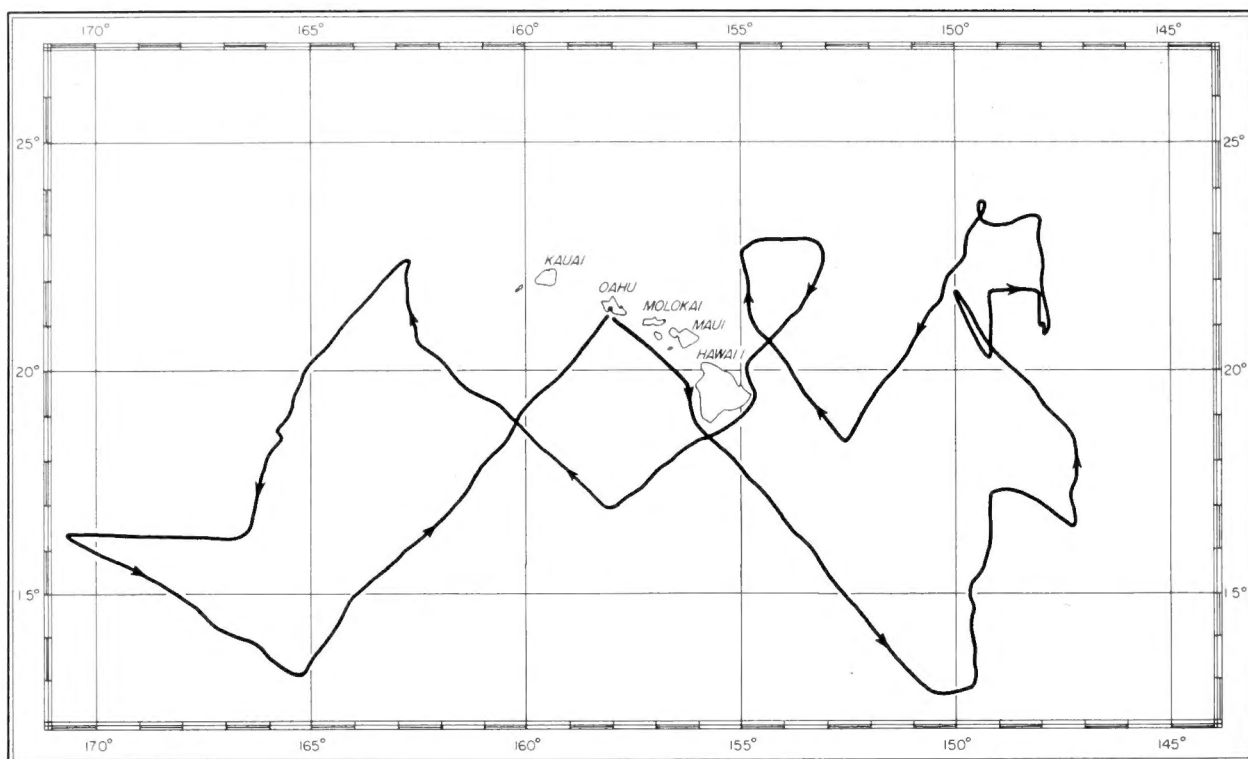


Figure 1a. --Vessel track of Hugh M. Smith cruise 50, Jan. 7-Feb. 10, 1959.

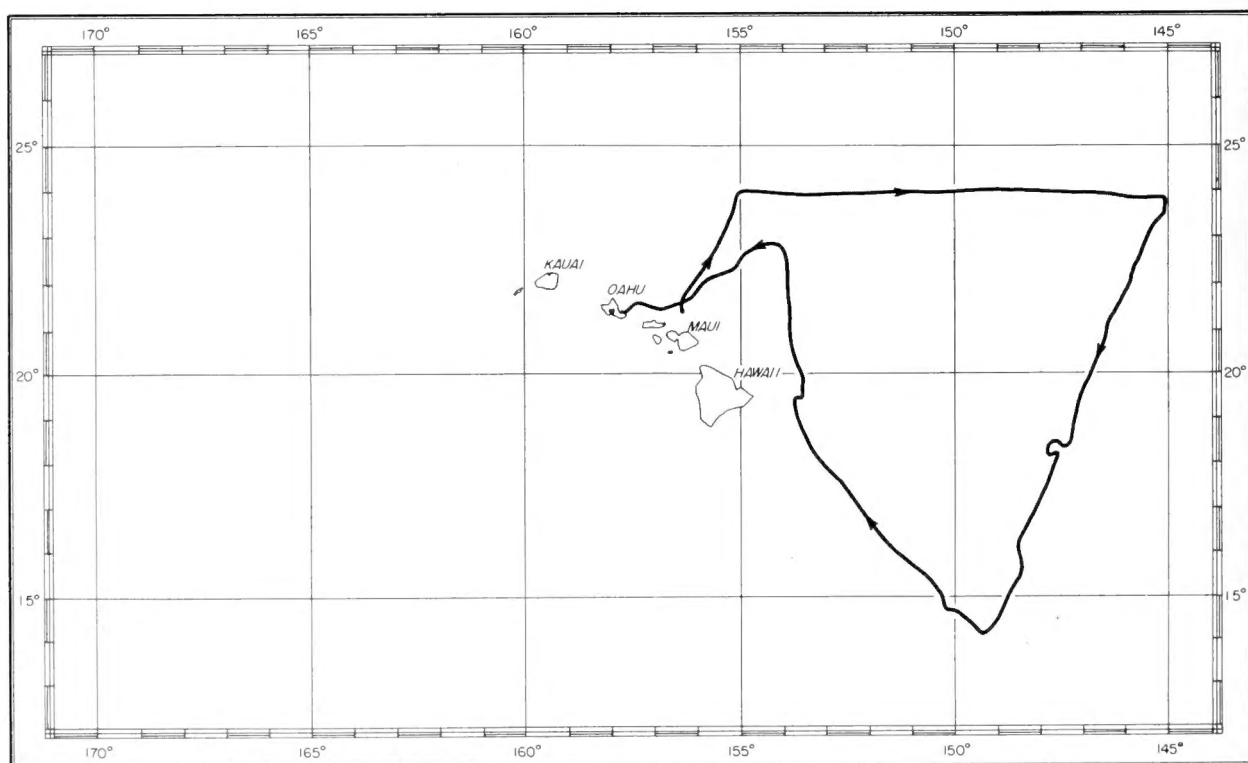


Figure 1b. --Vessel track of Hugh M. Smith cruise 51, Mar. 5-19, 1959.



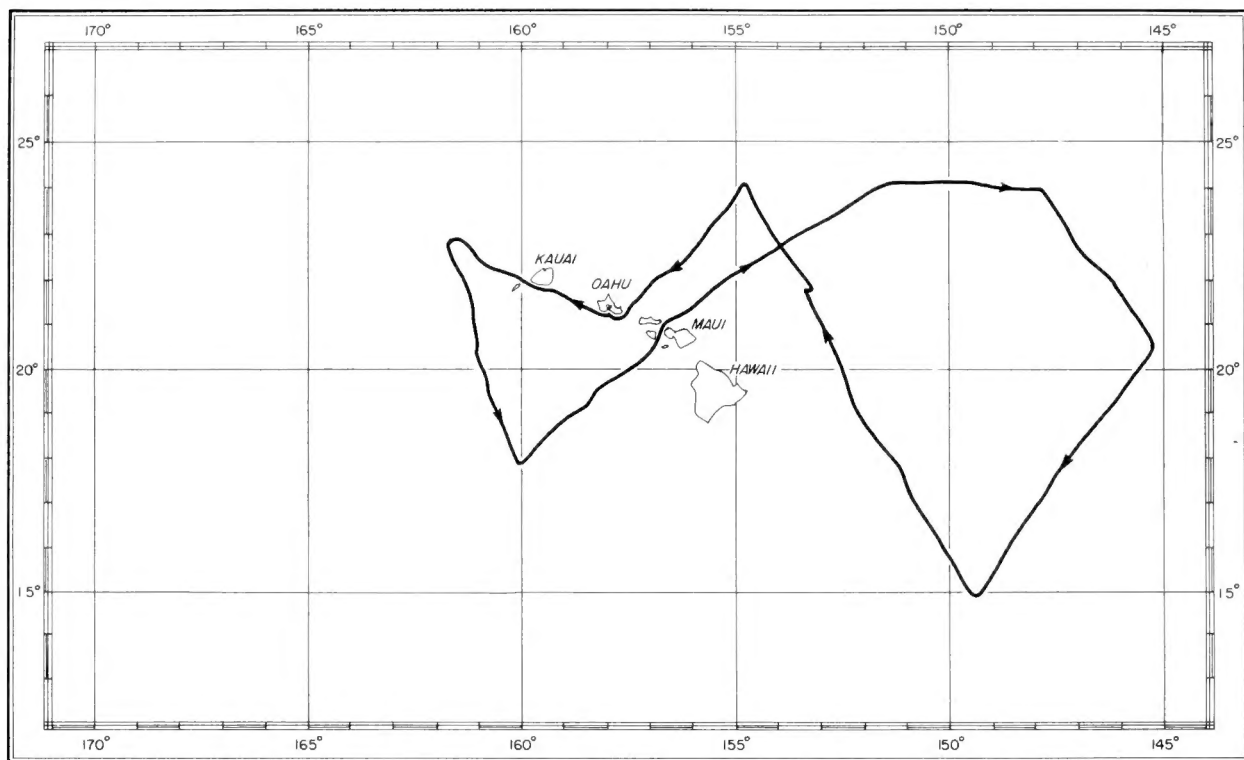


Figure 1c. --Vessel track of Hugh M. Smith cruise 51, Mar. 21-Apr. 6, 1959.

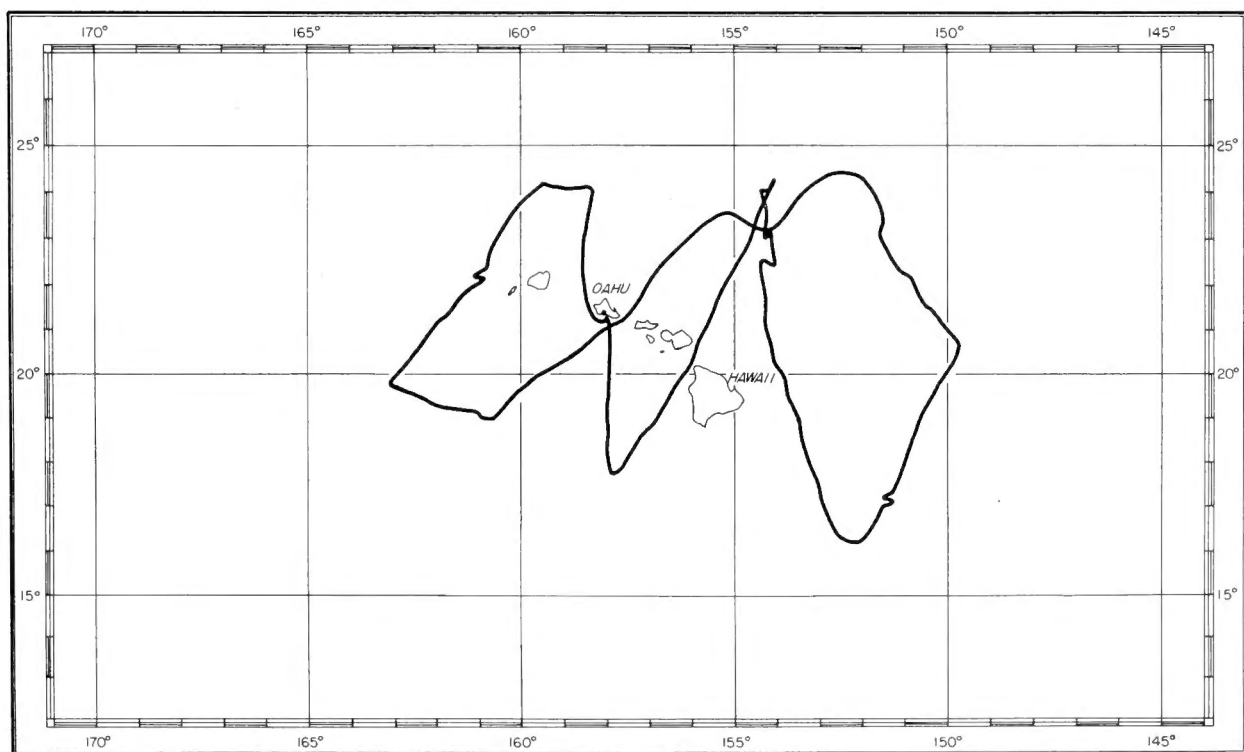


Figure 1d. --Vessel track of Charles H. Gilbert cruise 44, Apr. 30-May 18, 1959.

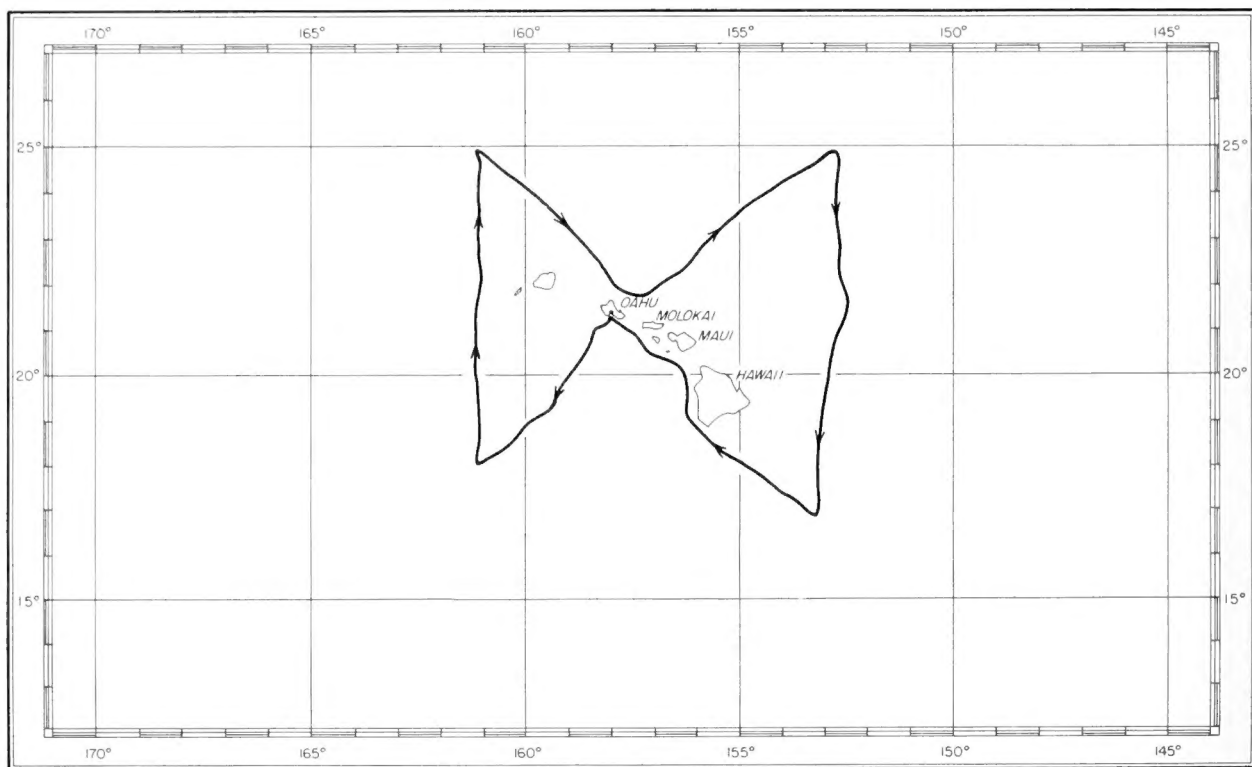


Figure 1e. --Vessel track of Charles H. Gilbert cruise 44, May 20-June 1, 1959.

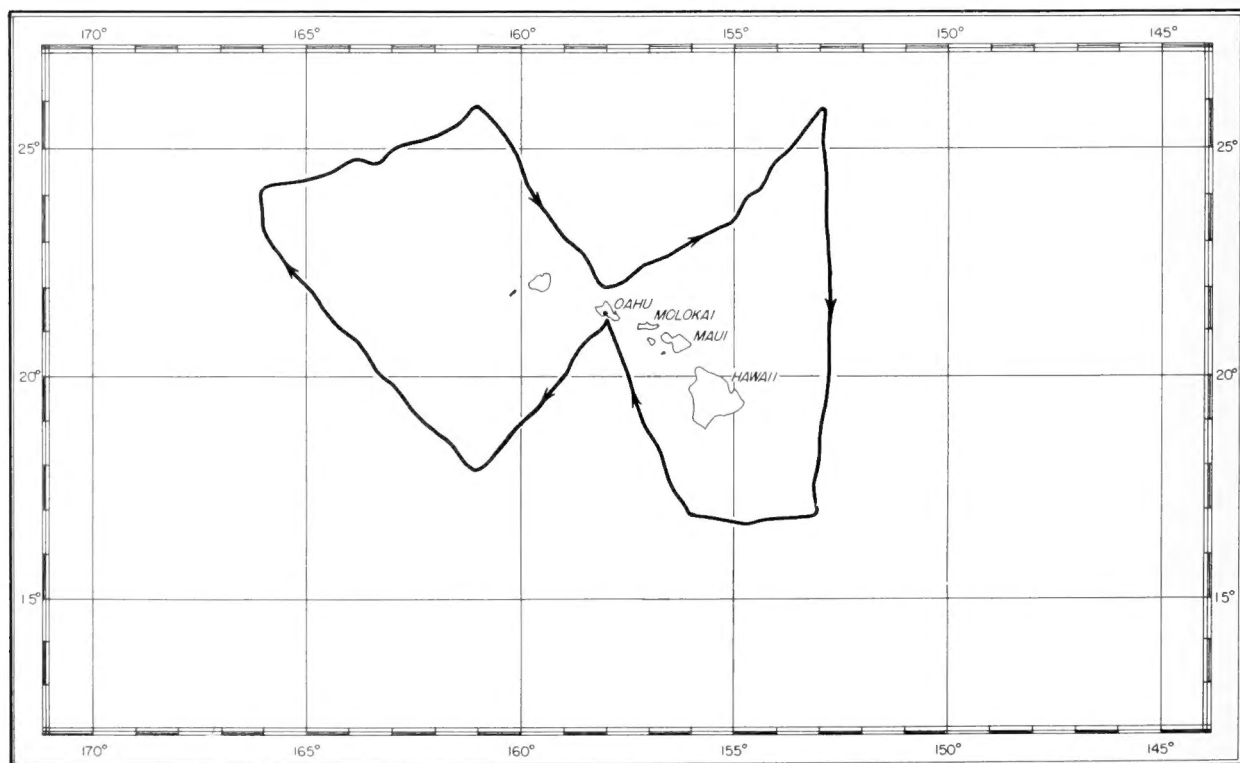


Figure 1f. --Vessel track of Charles H. Gilbert cruise 45, July 15-31, 1959.

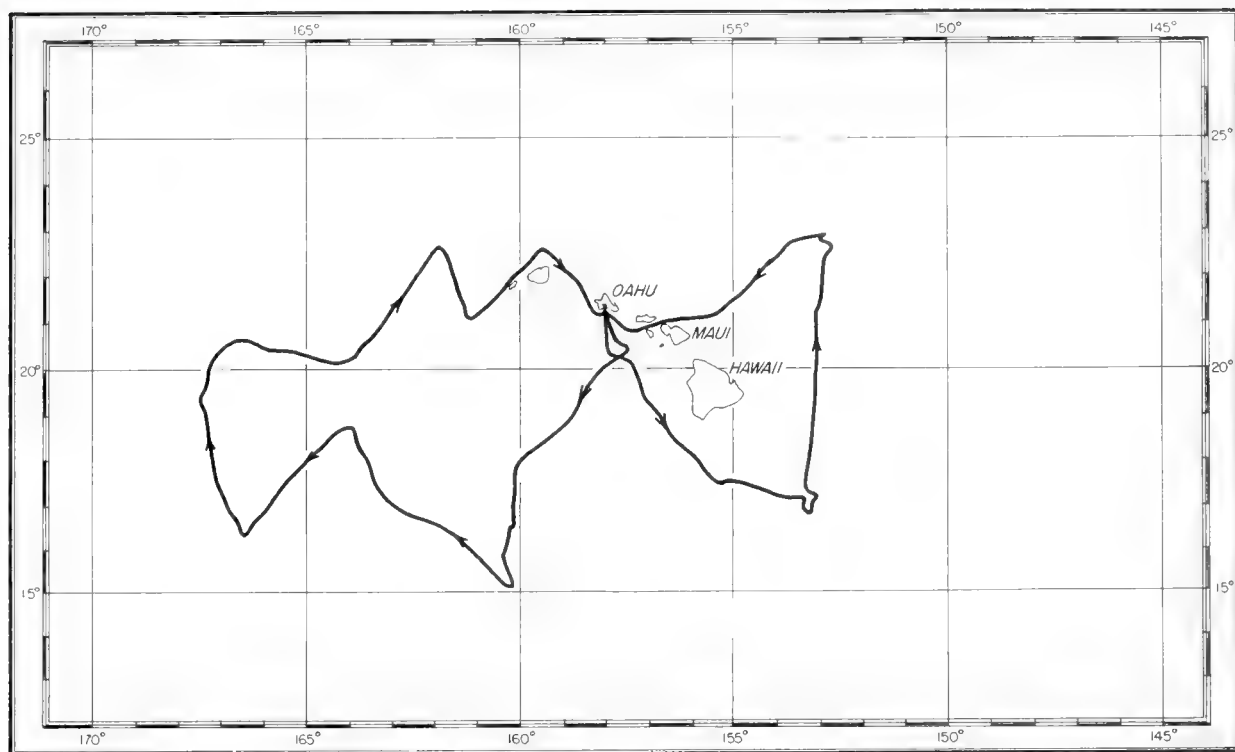


Figure 1g. --Vessel track of Charles H. Gilbert cruise 46, Sept. 29-Oct. 18, 1959.

## FIELD PROCEDURES

### Bathythermograph and Meteorological Observations

Bathythermograph (BT) lowerings were made every 3 hours on Hugh M. Smith cruises 50 and 51, and approximately every 30 miles on Charles H. Gilbert cruises 44, 45, and 46. The observations of weather and sea at each BT lowering appear in tables 2 to 6. The BT slides, prior to deposition in the U.S. Navy Hydrographic Office, were processed at the Laboratory by the method described by Callaway (1957).

Weather observations were recorded at 0000, 0600, 1200, and 1800 GCT daily. These data are presented in tables 7 to 11 (U.S. Weather Bureau Form 1210-F). Recording and coding follow the "Manual of Marine Meteorological Observations" (U.S. Weather Bureau, 1959).

### Light Penetration and Water Color

Secchi disc observations and Forel water color estimations from Hugh M. Smith cruises 50 and 51 and Charles H. Gilbert cruises 45 and 46 are tabulated in table 12. These observations were taken at local apparent noon.

## Zooplankton Collections

Of the 139 plankton hauls, 107 were 1/2-hour, 0- to 60-m. oblique hauls at approximately 2100 hours. In addition, 24 surface tows of 20-minute duration were taken during Charles H. Gilbert cruise 45 to collect larval tunas for serological studies. On Charles H. Gilbert cruise 46, five 1/2-hour surface hauls were taken across a temperature discontinuity encountered south of the island of Molokai. Three oblique 0- to 140-m. hauls were taken during Hugh M. Smith cruise 50 for comparison with plankton hauls taken at similar depths during previous cruises. Zooplankton sample weights are given in tables 13-17. The major group composition for selected samples is given in table 18.

All plankton hauls were made using a 1-meter net with body of No. 656 Nitex, aperture widths 0.66 mm., and with cod end of No. 308 Nitex, aperture widths 0.31 mm. (King and Demond, 1953).

### Surface Fish School, Bird Flock, and Aquatic Mammal Sightings

A watch was maintained for surface fish schools, birds, and aquatic mammals during

the daylight hours. Summaries of these observations are presented in tables 19 to 23.

#### Longline Fishing

During four of the cruises, 25 longline stations were occupied. No longlining was undertaken during Charles H. Gilbert cruise 45. The longline gear used was a modification of the 11-hook basket described by Mann (1955), alternating floatline lengths of 10, 5, and 0 fathoms (in the last case the mainline was tied directly to the buoy) instead of the usual 10-fathom length. Positions and species composition of the catch are presented in table 24. Common and scientific names of fish caught are listed in table 27.

#### Surface Trolling

Two lines were trolled during daylight hours. A summary of surface trolling results for the five cruises is presented in table 25.

#### Tagging

A total of 236 skipjack were tagged with the all-plastic dart-type tags described by Yamashita and Waldron (1958). A summary of skipjack tagging results is presented in table 26.

### LABORATORY PROCEDURES

#### Salinity Determination

The surface salinity samples obtained at each bathythermograph lowering were analyzed on shipboard using a modification of the Knudsen method (Van Landingham, 1957). A comparison of the shipboard and the subsequent laboratory determinations showed no significant difference between the two. The salinity data are incorporated in tables 2 to 6.

#### Phosphate Determination

Surface phosphate samples were collected on Hugh M. Smith cruises 50 and 51 and on Charles H. Gilbert cruises 44 and 46. These samples were analyzed by the hydrazine sulphate modification of Deniges' method (King, Austin, and Doty, 1957). The results are in tables 2, 3, 4, and 6.

#### Zooplankton

For all cruises, the methods for determining zooplankton abundance and composition described by King and Hida (1957) were followed with two exceptions:

1. All organisms above 5 cm. in

longest dimension, plus the nonfood<sup>2/</sup> organisms 2-5 cm. in longest dimension, were removed from the sample and not included in the weight or group count data.

2. The weights of plankton expressed in g./1,000 m.<sup>3</sup> (tables 13-17) were converted from volumetric displacement values for Hugh M. Smith cruises 50 and 51 and Charles H. Gilbert cruise 44. No significant difference was found between plankton volumes determined by volumetric displacement and those weighed directly after draining in a 56XXX grit gauze sock. This conclusion is based on a regression analysis in which 63 plankton samples ranging in displacement volume from less than 5 cc. to more than 200 cc. were drained, weighed, and volumetrically measured by water displacement. The regression equation of weight on volume was  $Y = 0.9954X$ . The deviation from a theoretical one-to-one basis was 0.0046 (E. C. Jones, personal communication).

Five stations from each cruise, except Hugh M. Smith cruise 50, were selected for group-count analysis (phylum to order) following the method described by Jones (McGary, Jones, and Austin, 1956). For Hugh M. Smith cruise 50, six stations were analyzed. The stations chosen were situated in one of three water types characterized by comparatively high salinity ( $> 34.9$  ‰), intermediate salinity ( $34.5 - 34.9$  ‰), or low salinity ( $< 34.5$  ‰). The group composition and the percentage occurrence of each group are presented in table 18.

---

<sup>2/</sup> Siphonophores, medusae, ctenophores, heteropods, and tunicates, as described by King and Hida (1957).

## LITERATURE CITED

- CALLAWAY, RICHARD J.  
1957. Oceanographic and meteorological observations in the northeast and central North Pacific, July-December 1956. U.S. Fish and Wildlife Service, Special Scientific Report--Fisheries 230, 49 p.
- KING, JOSEPH E., and JOAN DEMOND  
1953. Zooplankton abundance in the central Pacific. U.S. Fish and Wildlife Service, Fishery Bulletin 82, vol. 54, p. 111-144.
- \_\_\_\_\_, and THOMAS S. HIDA  
1957. Zooplankton abundance in the central Pacific, Part II. U.S. Fish and Wildlife Service, Fishery Bulletin 118, vol. 57, p. 365-395.
- \_\_\_\_\_, THOMAS S. AUSTIN, and MAXWELL S. DOTY  
1957. Preliminary report on expedition EASTROPIC. U.S. Fish and Wildlife Service, Special Scientific Report -- Fisheries 201, 155 p.
- MANN, HERBERT J.  
1955. Construction details of improved tuna long-line gear used by Pacific Oceanic Fishery Investigations. U.S. Fish and Wildlife Service, Commercial Fisheries Review, vol. 17, no. 12, p. 1-10. [Also as Separate No. 422]
- MCGARY, JAMES W., EVERET C. JONES, and THOMAS S. AUSTIN  
1956. Mid-Pacific oceanography, Part IX, Operation NORPAC. U.S. Fish and Wildlife Service, Special Scientific Report--Fisheries 168, 127 p.
- SECKEL, GUNTER R.  
1961. An atlas of the oceanographic climate of the Hawaiian Islands region. U.S. Fish and Wildlife Service, Fishery Bulletin (in press).
- SVERDRUP, HAROLD U., MARTIN W. JOHNSON, and RICHARD H. FLEMING  
1942. The oceans, their physics, chemistry, and general biology. Prentice-Hall, Inc., New York, 1,087 p.
- U.S. NAVY HYDROGRAPHIC OFFICE  
1956. Bathythermograph observations. U.S. Navy Hydrographic Office Pub. 606-c, 2nd edition, 16 p.
- U.S. WEATHER BUREAU  
1960. Manual of marine meteorological observations. U.S. Weather Bureau, Circular M, 10th edition. 127 p.
- VAN LANDINGHAM, JOHN W.  
1957. A modification of the Knudsen method for salinity determination. Journal du Conseil Permanent International pour l'Exploration de la Mer, vol. 22, no. 2, p. 174-179.
- YAMASHITA, DANIEL T., and KENNETH D. WALDRON  
1958. An all-plastic dart-type fish tag. California Fish and Game, vol. 44, no. 4, p. 311-317.

Table 1.--Cruise areas and periods

Vessel	Cruise	Period, 1959	General Area
Hugh M. Smith	50	Jan. 9-Feb. 10	13°N. to 23°N.; 147°W. to 170°W.
Hugh M. Smith	51	March 3-March 19 March 21-April 6	14°N. to 24°N.; 146°W. to 157°W. 15°N. to 24°20'N.; 145°W. to 162°W.
Charles H. Gilbert	44	April 30-May 18 May 20-June 1	15°50'N. to 24°30'N.; 150°W. to 163°W. 17°N. to 25°N.; 155°W. to 161°W.
Charles H. Gilbert	45	July 6-July 14 July 15-July 31	Local Hawaiian Waters 17°N. to 26°N.; 153°W. to 166°W.
Charles H. Gilbert	46	Sept. 15-Sept. 26 Sept. 29-Oct. 18	Local Hawaiian Waters 15°N. to 23°N.; 153°W. to 167°30'W.

Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50  
(Recording and coding of data follows U.S. Navy Hydrographic Office, 1956.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro- meter (mb.)	Wear- ther	Clouds		Visi- bility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
1	0310	1/10	20°17'	156°02'	77.0	27	3	78.0	72.0	1011	02	6 1/	6	9	0	04	2	34.72
2	0705	1/10	19°39'	156°10'	76.1	20	9	77.0	73.5	1013	02	X 1/	X	9	0	0	0	34.74
3	1630	1/10	18°55'	156°00'	76.3	04	3	76.5	72.1	1012	02	6	6	9	0	10	1	34.57
4	1900	1/10	18°38'	155°45'	76.7	15	3	78.5	74.2	1014	02	4,8	6	9	0	10	1	34.61
5	2100	1/10	18°26'	155°33'	77.3	15	5	77.5	73.6	1014	02	4,8	6	9	0	10	1	34.53
6	0000	1/11	18°06'	155°15'	78.1	15	4	79.4	73.6	1012	02	4,8	3	9	0	15	1	34.44
7	0300	1/11	17°48'	154°59'	77.2	15	5	77.1	73.2	1012	01	4,8	2	9	1	15	1	34.72
8	0600	1/11	17°29'	154°42'	76.9	11	7	76.7	73.5	1013	02	4	2	9	1	X	X	34.72
9	0900	1/11	17°10'	154°26'	76.5	09	6	76.9	73.8	1014	02	4	2	9	1	15	1	34.74
10	1200	1/11	16°48'	154°08'	77.8	08	10	76.8	73.2	1012	02	X	1	9	2	15	1	34.36
11	1500	1/11	16°26'	153°49'	76.9	08	10	76.9	73.6	1012	02	X	2	9	2	15	1	34.52
12	1800	1/11	16°06'	153°32'	77.3	11	12	78.0	73.7	1013	15	4,6	6	9	2	11	2	34.64
13	2100	1/11	15°46'	153°14'	77.5	09	15	78.0	73.0	1012	02	4,6	6	9	2	11	2	34.64
14	0000	1/12	15°25'	152°57'	77.0	08	14	78.0	73.9	1010	03	4,6	7	9	2	11	2	34.72
15	0300	1/12	15°04'	152°40'	76.8	10	12	77.5	73.5	1010	02	4,6	7	9	2	11	2	34.72
16	0600	1/12	14°43'	152°21'	76.6	08	14	77.3	74.0	1012	02	X	7	9	2	11	2	34.74
17	0900	1/12	14°25'	152°07'	77.3	08	16	77.2	74.1	1012	01	X	5	9	3	11	4	34.49
18	1200	1/12	14°07'	151°53'	77.9	08	16	78.0	74.2	1010	02	X	2	9	3	11	4	34.16
19	1500	1/12	13°49'	151°38'	77.5	09	17	77.9	73.9	1009	02	X	2	9	3	11	4	34.23
20	1800	1/12	13°30'	151°22'	78.2	09	18	79.0	74.5	1010	02	4,6	5	9	3	11	4	34.05
21	2100	1/12	13°14'	151°06'	78.7	10	21	79.4	75.0	1009	02	4,6	3	9	4	10	4	34.08
22	0000	1/13	12°57'	150°50'	78.6	11	21	79.2	74.8	1006	02	4,6	3	9	4	11	4	33.97
23	0300	1/13	12°41'	150°38'	79.2	11	18	79.8	75.0	1008	01	4	2	9	4	11	4	33.92
24	0600	1/13	12°42'	150°24'	78.9	12	16	79.4	74.8	1008	03	X	4	9	4	11	4	33.97
25	1200	1/13	12°46'	149°55'	78.1	12	20	79.3	72.9	1008	02	X	6	9	4	11	4	
26	2145	1/13	12°51'	149°39'	78.4	10	18	80.0	73.5	1009	02	2	8	9	4	11	4	34.02
27	0300	1/14	13°04'	149°33'	78.1	11	18	78.7	73.2	1008	02	1	8	9	4	11	4	33.93
28	0600	1/14	13°30'	149°35'	78.1	11	14	78.5	73.5	1011	02	X	2	9	3	11	4	33.88
29	0900	1/14	13°51'	149°34'	78.4	10	13	78.5	74.3	1011	02	X	2	9	3	11	4	33.93
30	1200	1/14	14°18'	149°34'	78.0	10	13	78.0	74.4	1010	02	X	2	9	3	11	4	34.11
31	1500	1/14	14°45'	149°35'	77.8	07	13	77.9	74.6	1010	02	X	4	9	3	11	4	34.15
32	2225	1/14	15°04'	149°41'	78.0	08	12	78.1	76.0	1011	03	6	8	8	2	09	3	34.15
33	0305	1/15	15°17'	149°31'	77.8	07	10	78.5	75.6	1012	02	6	8	9	2	09	3	34.12
34	0600	1/15	15°41'	149°17'	77.8	10	14	78.1	75.5	1013	02	X	7	9	2	09	3	34.19
35	0900	1/15	16°02'	149°08'	77.9	12	14	77.9	75.1	1013	02	X	7	9	2	09	3	34.21
36	1200	1/15	16°30'	149°09'	77.3	13	14	77.7	75.0	1012	02	X	5	9	2	10	1	34.12
37	1500	1/15	16°57'	149°11'	77.1	14	13	77.6	75.0	1012	02	X	X	9	2	10	1	34.12
38	2205	1/15	17°17'	149°18'	77.5	19	08	79.0	76.0	1011	02	6	7	9	2	10	1	34.06
39	0600	1/16	17°15'	148°38'	77.5	21	10	78.1	75.1	1012	80	X	8	9	2	10	1	34.24
40	1200	1/16	16°56'	147°51'	77.0	03	14	75.0	71.5	1010	02	X	6	9	2	08	1	34.05

1/ X indicates that no observation was recorded.

Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro meter (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T)	Amt.		
41	2200	1/16	16°37'	147°12'	77.0	13	21	76.3	74.4	1009	01	6,4	7	9	3	14	34.18	0.34
42	0300	1/17	16°52'	147°12'	76.9	12	12	76.2	72.1	1008	15	6,4	6	9	2	31	34.07	
43	0600	1/17	17°18'	147°16'	76.5	13	14	76.4	72.1	1010	01	8	2	9	2	31	34.14	
44	0900	1/17	17°36'	147°12'	76.9	13	14	76.9	72.0	1010	02	8	2	9	2	31	34.12	
45	1200	1/17	18°05'	147°12'	77.2	14	17	76.2	72.0	1008	02	X	2	9	3	12	34.10	
46	1500	1/17	18°33'	147°12'	76.9	15	16	76.1	71.2	1008	02	X	4	9	3	12	34.03	
47	1800	1/17	18°57'	147°32'	77.1	15	20	76.8	70.0	1010	02	6	7	9	3	31	34.04	
48	2100	1/17	19°18'	147°52'	76.4	16	19	77.9	70.4	1010	02	6,4	7	9	3	31	34.13	
49	0000	1/18	19°39'	148°12'	76.5	15	23	77.2	71.1	1008	02	4	5	9	3	15	34.19	
50	0300	1/18	19°59'	148°35'	76.4	16	22	77.0	71.8	1009	02	4,6	2	9	3	15	34.10	
51	0600	1/18	20°20'	148°57'	76.1	16	23	76.9	72.0	1010	02	X	4	9	3	15	34.25	
52	0900	1/18	20°38'	149°10'	76.3	15	24	76.7	72.5	1010	02	4	6	9	3	15	34.19	
53	1200	1/18	21°02'	149°30'	75.4	16	28	76.4	72.5	1009	02	X	4	9	5	15	34.46	
54	1500	1/18	21°26'	149°49'	76.1	16	24	76.5	72.9	1009	02	X	4	9	3	15	34.21	
55	1800	1/18	21°50'	150°07'	74.4	16	30	77.9	72.9	1008	14	6	6	9	5	15	34.89	
56	1800	1/19	20°21'	149°10'	76.4	16	24	76.2	73.2	1015	02	4,5	7	9	3	15	34.14	
57	2100	1/19	20°48'	149°10'	75.6	16	07	78.4	74.2	1024	02	4,5	7	9	2	15	34.45	
58	0000	1/20	21°16'	149°12'	76.0	11	18	75.9	74.0	1013	63	0	9	6	2	25	34.30	
59	0300	1/20	21°44'	149°14'	75.1	13	13	76.0	73.7	1015	02	4,6	7	9	2	25	34.61	
60	0600	1/20	21°48'	148°50'	74.8	15	18	75.4	72.6	1016	60	X	8	8	2	15	34.67	
61	0900	1/20	21°46'	148°28'	74.6	14	12	76.1	72.0	1017	00	X	8	8	2	14	34.71	
62	1200	1/20	21°46'	148°04'	74.4	16	10	74.9	71.7	1016	02	X	6	9	2	15	34.93	
63	1500	1/20	21°22'	148°02'	74.4	34	17	71.1	69.0	1017	63	X	8	X	2	15	34.65	
64	1800	1/20	21°00'	148°00'	74.3	05	14	72.6	67.9	1018	14	6	7	9	2	05	34.75	
65	2150	1/20	21°02'	148°00'	74.7	11	14	74.0	70.6	1016	01	4,8	2	9	2	06	34.78	
66	0310	1/21	20°53'	147°58'	75.5	15	11	76.0	71.0	1015	02	4,8	4	9	2	14	34.46	
67	0600	1/21	21°18'	148°01'	74.7	14	10	74.9	71.1	1016	03	4	6	9	2	14	34.85	
68	0900	1/21	21°41'	147°59'	74.5	15	07	74.6	71.0	1016	01	4	2	9	2	09	34.87	
69	1200	1/21	22°10'	147°59'	74.5	14	10	74.0	70.4	1014	02	8	4	9	2	09	34.88	
70	1500	1/21	22°40'	147°59'	74.0	15	10	73.9	70.1	1014	02	8	2	9	2	09	34.86	
71	2200	1/21	23°01'	148°03'	72.8	33	06	70.0	68.4	1015	25	6	8	8	2	09	34.86	
72	0300	1/22	23°10'	147°58'	72.9	06	06	71.1	68.4	1014	15	4,6	6	9	1	09	35.13	
73	0600	1/22	23°13'	148°21'	73.0	16	08	72.7	70.1	1015	02	6	7	9	1	09	35.02	
74	0900	1/22	23°11'	148°44'	72.5	19	07	71.5	69.5	1015	02	8,6	6	9	1	22	35.10	
75	1200	1/22	23°11'	149°13'	73.5	16	07	71.7	68.2	1014	14	6	8	9	1	26	35.01	
76	1500	1/22	23°17'	149°16'	72.5	08	05	72.0	69.7	1015	01	6	2	9	1	11	35.04	
77	2210	1/22	23°42'	149°15'	72.9	19	11	73.5	70.3	1016	02	4,6,8	5	9	1	16	34.97	
78	0300	1/23	23°39'	149°16'	73.1	28	08	74.0	70.5	1016	02	4,6,8	5	9	1	32	34.97	
79	0600	1/23	23°15'	149°30'	74.0	26	12	72.1	67.4	1018	14	6	8	8	1	32	35.02	
80	0900	1/23	22°53'	149°42'	73.8	28	10	73.1	70.2	1019	10	4,6,8	4	9	1	32	34.90	



Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50 (con.)

Ser. No.	Time Date, 1959 (GCT)	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
					Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
81	1200	22°29'	149°55'	74.6	33	14	73.0	70.0	1018	02	8	3	9	1	24	1	34.64
82	1500	22°04'	150°08'	74.2	34	14	73.0	67.7	1019	01	8	1	9	1	28	2	34.82
83	1800	21°38'	150°24'	75.1	03	13	73.9	67.7	1020	02	8	2	9	2	34	2	34.73
84	2100	21°13'	150°39'	74.5	04	14	76.0	69.0	1020	02	8	2	9	2	34	5	34.61
85	0000	20°50'	150°55'	74.9	04	18	74.6	67.9	1019	02	8	3	9	2	34	4	34.64
86	0300	20°23'	151°14'	75.0	03	20	74.7	69.7	1019	02	8	6	9	3	34	4	34.73
87	0600	19°56'	151°31'	76.0	04	26	73.9	67.9	1021	02	8	2	9	4	34	4	34.38
88	0900	19°40'	151°44'	76.0	05	22	74.2	68.8	1022	02	8	6	9	3	05	4	34.49
89	1200	19°16'	152°00'	76.3	06	22	74.5	69.5	1021	03	6,8	7	8	3	05	4	34.41
90	1500	18°50'	152°15'	77.0	04	24	74.4	69.6	1020	02	6,8	7	9	3	05	4	34.22
91	1800	18°26'	152°32'	76.7	05	22	74.8	70.8	1022	80	0	8	5	3	05	3	34.58
92	2100	18°46'	152°51'	77.1	08	22	75.1	72.0	1022	01	4,6	2	9	4	05	3	34.21
93	0000	19°08'	153°09'	76.9	08	22	77.0	72.0	1020	02	6,8	6	8	4	05	3	34.24
94	0300	19°31'	153°27'	76.7	06	22	75.8	71.1	1020	02	6,8	7	9	4	05	3	34.20
95	0600	19°54'	153°45'	76.3	07	20	75.0	70.0	1021	15	6,8	6	9	4	06	3	34.27
96	0850	20°11'	153°56'	75.0	07	20	74.6	70.0	1022	02	6	7	6	4	06	3	34.83
97	1200	20°32'	154°12'	75.3	09	18	74.1	70.0	1021	02	6	6	6	3	07	3	34.80
98	1500	20°53'	154°29'	74.0	09	19	74.0	69.0	1021	01	8	2	9	3	07	3	34.87
99	1800	21°14'	154°45'	74.1	09	19	76.0	71.0	1022	02	6,8	2	9	3	07	3	34.88
100	2100	21°44'	154°47'	74.1	09	22	74.9	70.1	1023	16	6,8	6	7	3	32	5	34.99
101	0000	22°12'	154°48'	74.1	10	17	74.2	70.4	1020	16	6	7	9	3	10	3	35.01
102	0300	22°40'	154°48'	73.5	10	12	73.5	70.5	1021	21	6	7	6	3	10	3	35.06
103	0600	22°52'	154°32'	73.8	11	12	73.5	70.4	1022	14	6	7	9	3	09	3	35.05
104	0900	22°51'	154°07'	73.6	12	14	73.6	70.9	1023	02	6	5	9	3	11	3	35.07
105	1200	22°50'	153°40'	73.0	11	14	73.1	70.0	1022	01	6	3	9	3	09	3	35.07
106	1500	22°48'	153°14'	73.0	19	10	71.4	68.0	1022	20	6	6	8	3	09	3	35.16
107	2200	22°46'	153°08'	73.2	11	14	72.6	69.0	1022	02	8	2	9	2	09	3	35.09
108	0300	22°29'	153°06'	73.6	12	17	74.5	69.5	1019	02	4,8	2	9	3	12	4	35.09
109	0600	22°00'	153°12'	74.0	11	15	73.2	68.4	1020	02	8	2	9	3	12	4	34.98
110	0900	21°46'	153°19'	74.0	12	13	74.1	69.2	1019	02	6	5	9	3	12	4	34.96
111	1200	21°27'	153°37'	74.9	10	19	74.9	68.7	1018	02	4,6,8	4	9	4	12	4	34.67
112	1500	21°08'	153°56'	75.0	11	20	75.0	69.0	1017	02	6	7	9	3	12	4	34.60
113	1800	20°48'	154°15'	74.1	13	17	76.5	69.4	1019	02	4,8	2	9	3	12	4	34.84
114	2100	20°28'	154°34'	75.4	12	20	75.8	69.4	1018	02	4	1	9	4	12	4	34.67
115	0000	20°05'	154°51'	76.1	13	14	76.8	70.1	1015	03	4,6	4	9	3	12	4	34.50
116	0300	18°39'	155°49'	77.5	07	18	77.0	71.5	1015	02	8	1	9	3	12	4	34.27
117	0600	18°22'	156°12'	77.1	09	15	76.9	71.4	1015	02	8	1	9	3	10	4	34.45
118	0900	18°03'	156°35'	77.3	10	18	76.7	71.6	1017	02	8	1	9	3	10	4	34.33
119	1200	17°48'	156°50'	77.3	09	19	76.7	71.9	1016	02	8	2	9	3	10	4	34.36
120	1500	17°31'	157°14'	77.5	09	19	76.7	71.0	1016	02	8	3	9	3	09	4	34.35

Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
121	1500	1/29	17°14'	157°37'	77.5	07	18	76.6	71.9	1015	03	8,6	6	9	3	07	4	34.27
122	1800	1/29	16°54'	158°02'	78.0	08	21	77.2	72.0	1017	02	8	5	9	3	08	4	34.20
123	2100	1/29	17°12'	158°19'	78.1	09	18	77.9	72.1	1017	02	8	5	9	3	08	4	34.19
124	0000	1/30	17°31'	158°42'	77.6	09	18	77.2	71.3	1014	02	8	4	9	3	08	4	34.18
125	0300	1/30	17°51'	159°06'	77.7	08	16	78.0	72.5	1014	02	8	2	9	3	08	4	34.25
126	0600	1/30	18°10'	159°29'	77.4	08	14	76.9	71.6	1016	02	8	3	9	3	08	4	34.23
127	0900	1/30	18°26'	159°45'	75.6	06	09	75.8	70.3	1018	02	8	3	9	2	08	4	34.82
128	1200	1/30	18°44'	160°07'	75.6	06	10	75.0	70.5	1017	02	8	1	9	2	11	4	34.94
129	1500	1/30	19°03'	160°28'	75.6	05	07	74.9	70.1	1016	02	X	0	9	2	11	4	34.87
130	1800	1/30	19°19'	160°49'	75.5	05	06	74.9	69.5	1018	02	4,8	3	9	1	11	1	34.94
131	2100	1/30	19°35'	161°14'	75.6	10	04	76.5	70.3	1019	01	8	1	9	1	11	2	34.05
132	0000	1/31	19°50'	161°35'	77.4	03	06	76.5	69.4	1016	02	8	1	9	1	11	2	34.98
133	0300	1/31	20°07'	161°53'	77.7	00	06	75.8	68.2	1016	02	8	1	9	1	11	2	34.92
134	0600	1/31	20°26'	162°12'	76.1	01	12	76.7	69.0	1018	02	8	3	9	1	11	2	34.92
135	0900	1/31	20°42'	162°29'	76.1	00	10	75.0	68.5	1018	02	X	2	9	2	11	2	34.95
136	1200	1/31	21°01'	162°32'	75.4	03	22	73.0	68.8	1018	03	X	6	9	3	11	2	34.89
137	1500	1/31	21°20'	162°34'	75.4	02	22	71.9	65.9	1018	02	X	6	9	3	02	4	34.92
138	1900	1/31	21°42'	162°38'	74.8	04	22	70.0	60.7	1022	02	6,8	6	9	4	00	3	34.98
139	0000	2/1	22°05'	162°43'	75.0	05	23	70.0	62.5	1020	02	6	7	9	4	03	3	34.91
140	0600	2/1	22°35'	162°45'	73.8	06	27	69.0	60.8	1023	02	X	7	9	4	03	3	35.06
141	0900	2/1	22°16'	163°04'	74.4	07	20	68.9	62.3	1024	66	X	8	X	4	03	3	34.99
142	1200	2/1	21°55'	163°23'	74.9	07	26	69.1	64.2	1023	01	X	2	7	4	07	4	35.00
143	1500	2/1	21°34'	163°43'	74.0	06	25	70.3	64.0	1021	02	6,8	4	9	4	06	3	35.03
144	1800	2/1	21°14'	164°02'	74.5	06	25	68.5	64.9	1022	15	6,8	6	9	4	07	3	34.99
145	2100	2/1	20°56'	164°21'	75.0	08	26	75.9	65.1	1023	01	4,8	4	9	4	07	3	34.92
146	0000	2/2	20°37'	164°40'	75.4	08	20	72.1	66.8	1020	02	6,8	4	9	4	07	3	34.93
147	0300	2/2	20°16'	164°59'	74.9	08	22	73.0	66.7	1019	02	6,8	3	9	4	08	3	34.98
148	0600	2/2	19°54'	165°19'	75.5	09	23	73.1	67.9	1019	02	6	3	9	3	08	3	34.85
149	0900	2/2	19°32'	165°21'	75.7	09	18	74.2	69.0	1020	02	X	3	9	3	08	3	34.84
150	1200	2/2	19°03'	165°26'	75.0	08	16	74.5	68.0	1019	02	X	2	9	3	08	3	34.93
151	1450	2/2	18°35'	165°32'	76.4	06	20	75.1	67.5	1017	03	X	7	9	3	08	3	34.75
152	2255	2/2	18°46'	165°49'	75.4	06	18	74.7	68.7	1018	02	6,8	6	9	3	08	3	34.93
153	0600	2/3	18°14'	166°00'	74.9	07	16	75.2	66.0	1017	02	6	7	9	3	08	3	34.98
154	0900	2/3	17°54'	166°03'	76.8	08	23	74.5	69.8	1017	02	X	7	9	3	08	3	34.56
155	1200	2/3	17°28'	166°08'	77.3	09	23	75.4	66.9	1016	02	X	8	X	3	08	3	34.59
156	1500	2/3	17°02'	166°14'	77.5	07	20	76.0	67.6	1015	02	X	8	7	3	08	3	34.54
157	1800	2/3	16°35'	166°20'	77.6	07	20	76.5	66.8	1016	02	6,8	7	8	3	08	3	34.42
158	2100	2/3	16°24'	166°41'	77.9	07	19	77.9	68.0	1017	02	6	7	9	3	07	3	34.39
159	0000	2/4	16°25'	167°11'	77.6	08	22	77.4	67.5	1015	01	6,8	2	9	3	07	3	34.27
160	0300	2/4	16°25'	167°42'	77.4	08	17	77.0	69.5	1014	02	6,8	4	9	3	07	3	34.28

Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
161	0600	2/4	16°24'	168°14'	77.5	08	21	76.8	69.0	1014	02	6,8	2	9	3	07	3	34.33
162	0900	2/4	16°25'	168°37'	76.0	08	14	75.7	70.8	1015	02	X	3	9	3	07	3	34.83
163	1200	2/4	16°25'	169°08'	76.2	08	22	76.0	69.0	1014	02	X	2	9	4	07	4	34.83
164	1500	2/4	16°25'	169°39'	76.4	08	26	74.8	69.7	1012	02	6,8	2	9	4	07	4	34.92
165	2015	2/4	16°24'	170°02'	76.4	08	20	75.7	69.5	1014	02	6,8	2	9	4	07	4	34.85
166	0000	2/5	16°22'	170°41'	76.8	07	23	76.1	69.3	1012	02	6,8	4	9	4	06	4	34.85
167	0300	2/5	16°10'	170°22'	76.9	06	19	75.9	69.2	1012	02	4,6,8	5	9	4	06	4	34.71
168	0600	2/5	15°57'	170°01'	76.6	07	16	75.0	69.0	1011	02	6,8	4	9	4	06	4	34.83
169	0900	2/5	15°46'	169°44'	77.0	08	16	74.8	69.5	1012	02	X	4	9	4	06	4	34.52
170	1200	2/5	15°32'	169°23'	77.1	08	16	76.0	69.6	1011	02	X	3	9	4	06	4	34.40
171	1500	2/5	15°17'	169°03'	77.5	08	16	76.3	69.2	1009	02	X	2	9	4	06	4	34.37
172	1800	2/5	15°02'	168°42'	77.4	09	14	76.5	69.2	1010	14	4,6,8	3	9	3	08	3	34.28
173	2100	2/5	14°52'	168°23'	77.5	10	20	75.1	70.6	1012	16	6,8	6	9	3	08	3	34.27
174	0000	2/6	14°40'	168°01'	77.9	08	19	76.5	71.2	1010	02	6,8	4	9	3	08	3	34.33
175	0300	2/6	14°29'	167°38'	78.0	08	22	76.8	71.0	1008	02	6,8	5	9	3	08	3	34.41
176	0600	2/6	14°18'	167°16'	78.0	07	20	77.0	71.9	1009	02	6,8	4	9	3	08	3	34.34
177	0900	2/6	14°10'	166°57'	78.1	07	20	77.4	72.0	1009	02	X	4	9	3	08	3	34.27
178	1200	2/6	13°59'	166°35'	78.0	07	20	76.0	72.8	1010	14	X	6	7	4	08	4	34.22
179	1500	2/6	13°48'	166°13'	78.0	07	22	76.7	72.9	1008	02	X	4	9	3	08	3	34.24
180	1800	2/6	13°37'	165°52'	78.2	06	20	77.5	72.8	1010	15	4,6	7	9	3	08	3	34.17
181	2100	2/6	13°20'	165°37'	78.5	06	22	78.0	74.0	1010	02	6,8	7	8	3	08	3	34.10
182	0000	2/7	13°05'	165°21'	78.6	06	20	78.6	74.0	1008	02	6,8	8	8	3	08	3	34.32
183	0300	2/7	13°19'	165°10'	78.6	06	22	78.0	73.9	1007	15	6,8	8	8	3	08	3	34.28
184	0600	2/7	13°33'	164°58'	78.5	05	22	77.1	73.8	1008	14	X	8	8	3	06	3	34.25
185	1000	2/7	13°51'	164°45'	78.8	06	20	78.0	74.2	1010	02	X	8	8	3	06	3	34.22
186	1400	2/7	14°10'	164°31'	78.2	06	23	78.3	73.6	1008	02	X	X	X	3	06	3	34.21
187	1800	2/7	14°29'	164°16'	78.1	06	21	77.5	73.5	1009	02	6,8	7	8	3	06	3	34.19
188	2200	2/7	14°50'	164°02'	77.8	06	21	78.0	73.7	1010	02	6,8	7	8	3	06	3	34.27
189	0200	2/8	15°10'	163°42'	77.4	06	20	77.0	73.8	1008	02	6,8	7	8	3	06	3	34.41
190	0600	2/8	15°29'	163°20'	76.9	06	22	76.0	73.2	1009	14	6,8	7	9	3	06	3	34.73
191	1000	2/8	15°46'	162°59'	76.9	06	16	76.2	73.9	1010	14	X	8	7	3	06	3	34.72
192	1400	2/8	16°08'	162°33'	76.4	06	14	76.5	74.0	1008	02	X	8	8	2	06	3	34.75
193	1800	2/8	16°31'	162°09'	76.3	06	13	76.0	72.9	1010	14	6	8	8	2	06	3	34.45
194	2100	2/8	16°51'	161°50'	77.2	08	11	77.5	74.8	1011	15	6,8	8	8	2	07	3	34.33
195	0000	2/9	17°10'	161°34'	76.5	09	09	76.8	74.5	1010	14	0	8	5	2	09	3	34.33
196	0325	2/9	17°31'	161°20'	76.6	10	16	77.5	74.3	1010	60	0	8	5	2	09	3	34.29
197	0600	2/9	17°49'	161°04'	76.7	11	17	75.5	71.9	1011	14	0	7	5	2	09	3	34.28
198	0900	2/9	18°06'	160°48'	76.5	12	20	77.5	73.9	1010	02	X	8	7	2	09	3	34.35
199	1200	2/9	18°29'	160°30'	75.0	13	18	77.0	73.9	1011	14	X	8	7	3	09	3	34.75
200	1500	2/9	18°52'	160°13'	75.2	13	11	76.4	73.7	1011	02	X	8	X	2	09	3	34.77

Table 2.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 50 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	S	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover			Dir. (°T.)	Amt.		
201	2300	2/9	19°10'	160°05'	75.2	10	14	76.5	73.5	1012	20	0,6	8	7	2	10	1	34.84	0.36
202	0600	2/10	19°40'	159°31'	76.2	11	10	74.6	71.0	1014	61	X	8	5	2	10	1	34.34	
203	0900	2/10	19°58'	159°13'	76.0	14	08	74.4	71.3	1014	20	X	8	X	2	10	1	34.53	
204	1200	2/10	20°20'	158°53'	76.1	14	08	74.1	71.1	1013	60	X	8	X	2	10	1	34.32	
205	1500	2/10	20°43'	158°33'	75.4	17	02	74.0	70.9	1012	60	X	8	X	2	X	1	34.46	

Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51  
(Recording and coding of data follows U.S. Navy Hydrographic Office, 1956.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro meter (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
1	0020	3/6	21°17.5'	156°21.5'	74.8	08	20	75.7	68.3	1019	00	8	4	7	4	07	3	34.65
2	0600	3/6	21°48'	156°12'	74.7	08	20	73.2	67.3	1021	00	8	6	7	4	XX	X	34.56
3	1200	3/6	22°15.5'	155°54.8'	72.8	06	24	72.0	66.8	1022	00	X <sub>1</sub>	5	7	5	06	3	34.98
4	1800	3/6	22°44.8'	155°35'	73.2	08	20	71.8	64.1	1023	00	8	6	7	4	06	3	35.02
5	0000	3/7	23°22.3'	155°17.5'	72.8	08	23	74.0	65.6	1022	01	8	2	7	4	07	3	35.00
6	0300	3/7	23°41.5'	155°11'	72.8	09	22	72.8	65.0	1021	02	8	2	7	4	06	3	34.97
7	0600	3/7	23°55.3'	155°01.5'	72.7	08	18	72.3	65.5	1024	00	8	3	7	4	06	3	34.96
8	1000	3/7	23°57.5'	154°42.8'	72.3	09	16	71.9	64.7	1024	00	8	2	7	4	06	3	34.95
9	1400	3/7	23°56.2'	154°22'	72.1	10	20	71.0	64.2	1022	01	X	0	7	4	08	3	35.04
10	1800	3/7	23°56'	154°02.5'	71.3	10	20	71.9	61.6	1023	02	8	6	7	4	08	3	35.19
11	0000	3/8	23°57'	153°31'	70.9	09	18	72.0	65.3	1021	02	8	6	7	4	08	3	35.21
12	0500	3/8	23°56.2'	152°56'	70.3	09	18	71.4	64.0	1022	02	8	5	7	4	08	3	35.24
13	0900	3/8	23°55.8'	152°35'	70.4	09	23	72.3	63.5	1023	00	X	X	7	4	08	3	35.24
14	1300	3/8	23°55.5'	152°13'	70.2	09	20	69.5	64.5	1022	00	X	6	7	4	08	3	35.22
15	1700	3/8	23°55.8'	151°53'	70.8	10	16	71.6	61.9	1022	15	6	7	7	4	08	3	35.16
16	2100	3/8	23°57'	151°32.3'	71.5	09	16	71.3	64.1	1024	02	6	7	7	4	08	3	35.07
17	0100	3/9	23°57.8'	151°13.2'	71.2	10	21	69.7	64.0	1022	02	8	8	7	4	08	3	35.08
18	0500	3/9	23°58.2'	150°53'	71.0	10	20	71.2	64.0	1022	02	8	8	7	4	08	3	35.08
19	0900	3/9	23°58.5'	150°31.5'	70.8	10	21	72.0	64.3	1023	00	X	6	7	4	08	3	35.17
20	1300	3/9	23°59.2'	150°10'	70.9	10	24	71.0	62.3	1021	00	8	8	7	5	08	3	35.11
21	1700	3/9	24°01'	149°49.5'	71.3	10	22	70.9	64.0	1023	00	6	7	7	5	08	3	35.05
22	2100	3/9	24°05'	149°32'	71.2	10	19	72.7	64.5	1024	02	6	7	7	5	08	3	35.09
23	0100	3/10	24°03.5'	149°08'	72.5	09	18	72.2	66.0	1021	01	8	3	7	5	08	3	34.89
24	0500	3/10	24°01.5'	148°41'	71.8	09	20	70.9	65.0	1023	03	8	6	7	5	08	3	34.96
25	0900	3/10	24°01'	148°20'	71.6	09	13	70.3	64.0	1025	02	X	4	7	5	08	3	35.05
26	1300	3/10	24°00'	147°57'	70.5	09	20	70.6	62.5	1022	01	8	2	7	5	08	3	35.03
27	1700	3/10	23°59.5'	147°36.5'	71.7	08	23	70.6	62.0	1022	15	4	5	7	5	08	3	34.99
28	2100	3/10	23°59.5'	147°20'	71.7	09	21	70.7	62.1	1023	02	8	6	7	5	08	3	35.04
29	0100	3/11	23°57.8'	146°59'	71.1	09	23	70.9	63.0	1020	02	8	6	7	5	08	6	35.09
30	0500	3/11	23°56.5'	146°37.8'	71.3	09	23	70.5	63.6	1021	02	8	4	7	5	08	6	35.07
31	0900	3/11	23°55.2'	146°17'	70.3	09	18	70.1	62.8	1022	00	X	4	7	5	08	3	35.09
32	1300	3/11	23°54'	145°56.5'	70.5	09	23	69.7	62.4	1021	01	8	2	7	5	08	6	35.15
33	1700	3/11	23°53'	145°31.5'	70.5	08	18	70.2	63.7	1022	15	0	8	7	4	07	3	35.16
34	2100	3/11	23°52.5'	145°08'	70.0	08	23	70.8	63.7	1023	02	4	8	7	5	07	3	35.17
35	0000	3/12	23°36'	145°09.5'	70.1	06	28	70.1	64.7	1021	02	8	8	7	5	06	6	35.16
36	0300	3/12	23°09.7'	145°25'	70.5	06	32	70.5	65.9	1020	02	8	8	7	5	06	6	35.17
37	0600	3/12	22°46.5'	145°37'	71.8	07	26	70.7	64.5	1022	02	X	6	7	5	06	6	35.03
38	0900	3/12	22°26.2'	145°46'	71.9	07	26	71.0	66.3	1022	80	X	8	7	5	06	6	34.87
39	1200	3/12	22°06'	145°55.2'	72.5	07	26	72.0	67.0	1020	01	8	2	7	5	06	6	34.88
40	1500	3/12	21°45.3'	146°05'	72.0	07	25	71.6	67.0	1019	02	8	8	7	5	06	6	34.94

1/ X indicates that no observation was recorded.

Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro meter (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
41	1800	3/12	21°24.5'	146°14.2'	72.4	07	23	72.0	67.4	1020	02	8	6	7	5	06	6	34.94
42	2100	3/12	21°05'	146°23.3'	72.3	07	22	72.1	68.1	1020	25	6	6	7	5	07	6	35.06
43	0000	3/13	20°44'	146°32'	73.0	07	24	71.9	68.8	1019	50	8	7	7	5	06	6	34.91
44	0300	3/13	20°20.2'	146°41'	73.0	07	19	72.9	69.2	1017	02	8	8	7	4	06	3	34.89
45	0600	3/13	19°52.2'	146°51.8'	73.0	08	22	72.9	69.1	1018	80	8	8	6	4	06	3	34.89
46	0900	3/13	19°30.6'	146°58.2'	73.0	08	24	73.1	69.5	1021	00	8	2	7	4	06	3	34.96
47	1200	3/13	19°01.5'	147°10'	73.1	09	15	71.9	70.2	1016	51	8	8	6	3	06	3	34.89
48	1500*	3/13	18°33'	147°21'	75.0	09	16	75.0	71.8	1015	01	8	2	7	3	06	3	34.49
49	1700	3/13	18°19.5'	147°29.2'	75.0	09	18	74.1	69.8	1015	25	1	6	7	4	07	3	34.46
50	2235	3/13	18°21'	147°34.5'	75.1	09	12	76.3	71.1	1014	02	8	2	7	3	08	3	34.46
51	0100	3/14	18°27'	147°30.5'	75.6	09	12	77.4	71.6	1012	03	8	5	7	3	08	3	34.50
52	0600	3/14	17°45.2	147°42'	74.9	11	10	76.2	71.2	1014	02	8	2	7	2	XX	1	34.53
53	0900	3/14	17°23'	147°51'	75.2	12	06	75.7	70.8	1016	13	x	1	8	2	00	0	34.53
54	1200	3/14	16°56'	148°04.2'	75.2	10	05	75.0	71.0	1014	02	8	1	8	2	08	1	34.45
55	1500	3/14	16°28.5'	148°17.2'	75.2	17	06	75.0	70.9	1013	03	8	3	8	2	08	1	34.54
56	1800	3/14	16°04'	148°28.5'	75.4	13	06	77.1	71.4	1015	02	4	2	8	2	06	1	34.47
57	2100	3/14	15°34.2'	148°34.5'	77.2	17	02	79.5	72.0	1015	02	4	1	8	1	08	4	34.45
58	0000	3/15	15°14.2'	148°43'	78.0	07	06	77.5	71.7	1013	03	4	6	8	2	07	1	34.40
59	0300	3/15	14°45.3'	148°54'	77.0	11	06	77.2	72.0	1013	03	8	8	7	2	06	1	34.34
60	0600	3/15	14°21.2'	149°05.5'	77.0	05	06	77.9	72.8	1015	02	8	6	7	2	06	1	34.21
61	0900	3/15	14°01'	149°17'	76.7	09	10	77.5	73.0	1015	02	8	8	6	2	06	1	34.30
62	1200	3/15	14°19.2'	149°39'	76.9	04	10	76.9	72.0	1014	01	8	2	7	2	08	1	34.29
63	1500	3/15	14°40'	150°02'	76.9	06	13	76.5	72.5	1014	02	8	2	7	2	07	1	34.38
64	1710	3/15	14°44'	150°14.5'	76.9	06	15	76.8	72.0	1016	02	8	2	7	2	03	1	34.46
65	2210	3/15	14°44.5'	150°13'	77.2	06	06	78.5	72.7	1016	02	4	2	8	2	06	1	34.42
66	0030	3/16	14°49.5'	150°14.5'	77.1	05	16	79.4	72.9	1014	02	4	2	8	2	06	1	34.42
67	0300	3/16	15°02.7'	150°28.2'	76.9	06	14	78.7	72.1	1015	02	4	2	8	2	06	1	34.34
68	0600	3/16	15°21'	150°48.5'	76.8	06	15	77.7	72.4	1018	02	4	1	8	2	06	1	34.17
69	0900	3/16	15°39'	151°03.5'	76.5	06	15	76.8	72.2	1019	00	4	4	8	2	06	1	34.25
70	1200	3/16	16°00'	151°25'	76.1	06	15	76.0	71.8	1018	01	8	2	8	2	06	1	34.44
71	1500	3/16	16°22.8'	151°47'	76.3	06	15	75.6	71.3	1018	02	8	2	8	2	06	1	34.23
72	1800	3/16	16°45'	152°05.5'	76.3	04	16	77.1	71.0	1020	02	8	2	8	2	03	1	34.44
73	2100	3/16	17°07'	152°22'	76.0	04	17	78.2	72.1	1021	02	8	2	8	3	02	1	34.34
74	0000	3/17	17°29.5'	152°40'	76.0	04	18	77.4	71.3	1018	03	8	4	8	3	03	3	34.35
75	0300	3/17	17°52.3	152°57'	75.0	05	22	76.4	71.2	1018	02	8	2	8	3	03	3	34.42
76	0600	3/17	18°15.7'	153°13.5'	75.1	05	21	75.2	70.0	1020	02	8	2	8	3	03	3	34.51
77	0900	3/17	18°34.8'	153°26'	74.5	05	19	75.2	69.2	1022	02	8	1	8	3	03	3	34.65
78	1200	3/17	19°01.5'	153°30'	74.9	05	17	74.5	69.4	1021	03	8	2	8	3	03	3	34.57
79	1500	3/17	19°27.5'	153°33.5'	74.0	05	17	73.7	69.0	1021	02	8	2	8	3	03	3	34.66
80	1800	3/17	19°53.2'	153°36.5'	73.9	06	18	74.3	69.0	1023	02	8	3	8	3	03	3	34.66

0.31

Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51 (con.)

Ser. No.	Time Date, (GCT) 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.).	Wind		Air temp.		Baro- meter (mb.)	Wear- ther	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
					Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Ampt.		
81	2100	3/17	20°19'	153°40.5'	74.4	06	76.3	69.3	1022	02	8	2	8	2	03	3	34.60
82	0000	3/18	20°45'	153°43.5'	74.5	04	74.5	67.8	1022	02	8	2	8	2	03	3	34.65
83	0300	3/18	21°11'	153°47.5'	73.9	04	75.8	68.8	1021	02	8	2	8	2	03	3	34.81
84	0600	3/18	21°36'	153°50.6'	73.4	05	74.0	69.1	1022	02	8	5	7	3	03	3	34.81
85	0900	3/18	21°57'	153°52.8'	71.3	06	74.0	70.1	1023	02	8	2	7	3	03	3	35.21
86	1200	3/18	22°22.8'	153°56.5'	72.6	05	73.5	70.0	1023	02	8	5	7	3	03	3	34.98
87	1500	3/18	22°48'	154°01'	71.8	06	72.0	69.0	1022	01	8	1	8	3	03	3	35.16
88	1800	3/18	22°53.5'	154°18'	72.7	05	73.8	69.6	1023	02	8	6	8	2	04	3	35.00
89	2100	3/18	22°40'	154°48.8'	72.9	06	74.9	70.2	1023	02	8	4	8	3	03	3	34.94
90	0000	3/19	22°33'	155°02.3'	75.2	07	76.0	70.7	1021	02	8	5	8	2	07	1	34.64
91	0300	3/19	22°15.5'	155°23.5'	74.3	04	76.9	70.7	1021	01	8	2	8	2	07	1	34.70
92	0600	3/19	22°02.8'	155°53'	74.9	06	75.0	69.6	1022	02	8	2	8	2	07	1	34.60
93	0900	3/19	21°53.2'	156°15.8'	74.7	06	74.7	70.0	1022	25	8	6	8	2	07	1	34.63
94	1200	3/19	21°43'	156°45'	74.0	08	74.1	70.1	1021	01	8	2	8	2	07	1	34.74
95	1500	3/19	21°31.2'	157°15.5'	74.0	08	73.8	69.1	1021	03	8	5	8	2	07	1	34.71
96	0000	3/22	21°20.5'	158°20.8'	75.6	10	79.5	69.5	1020	02	8	1	8	2	07	1	34.65
97	0300	3/22	21°31.5'	158°49'	75.0	08	75.8	69.0	1021	02	8	1	8	3	07	1	34.65
98	0600	3/22	21°42.8'	159°18.5'	75.8	06	76.3	70.0	1022	00	8	5	8	3	07	1	34.46
99	0900	3/22	21°53'	159°39'	75.1	08	76.0	69.2	1023	00	8	5	7	2	07	1	34.44
100	1200	3/22	22°07'	160°09'	75.0	06	75.0	70.0	1021	02	5	4	8	3	06	1	34.55
101	1500	3/22	22°20'	160°39'	73.9	08	73.6	69.8	1019	01	8,5	2	8	3	06	1	34.81
102	1800	3/22	22°35.5'	161°04.7'	74.0	08	75.4	69.8	1021	00	8	5	8	3	05	1	34.72
103	2100	3/22	22°55'	161°30'	74.3	09	75.7	69.0	1021	01	8	2	8	3	06	1	34.81
104	0000	3/23	22°52'	161°46'	74.2	13	76.0	69.5	1019	02	8	2	8	3	12	1	34.87
105	0300	3/23	22°32'	161°38'	74.5	16	75.2	68.3	1018	02	8	1	8	2	13	1	34.64
106	0600	3/23	22°08.5'	161°30'	74.2	16	75.2	68.6	1019	02	8	1	8	2	12	1	34.74
107	0900	3/23	21°44.5'	161°21.5'	74.1	12	75.5	69.4	1020	03	8	2	8	3	12	1	34.84
108	1200	3/23	21°15'	161°14.5'	75.8	16	75.0	69.0	1018	00	X	0	8	2	12	1	34.24
109	1500	3/23	20°45.7'	161°07.2'	75.7	14	74.7	69.9	1018	02	X	0	8	2	11	1	34.52
110	1040	3/23	20°28.5'	161°07.3'	75.3	09	75.5	70.2	1019	03	6	6	8	2	06	1	34.60
111	2310	3/23	20°29.4'	161°08'	75.8	09	77.9	71.5	1019	02	5	2	8	2	06	1	34.62
112	0120	3/24	20°30'	161°03'	76.1	06	78.3	71.5	1018	15	8	6	7	2	06	1	34.51
113	0330	3/24	20°21'	161°00'	76.0	09	77.0	70.9	1018	02	8,4	7	7	2	11	1	34.51
114	0600	3/24	19°58'	160°51.5'	76.5	11	76.4	70.3	1019	01	8	1	7	2	12	1	34.27
115	0900	3/24	19°36.2'	160°44.5'	76.8	13	77.3	69.9	1021	02	X	0	7	3	12	1	34.23
116	1200	3/24	19°09.8'	160°37.8'	76.6	11	76.2	70.6	1020	02	X	0	7	3	11	3	34.06
117	1500	3/24	18°43.7'	160°31.2'	76.8	10	76.2	69.4	1019	03	8	1	7	3	11	3	33.96
118	1800	3/24	18°17.8'	160°24'	76.9	09	76.4	71.5	1020	15	8	5	7	3	11	3	34.14
119	2100	3/24	17°51'	160°16.8'	76.9	10	78.2	69.4	1021	01	4	1	7	3	11	3	34.15
120	0000	3/25	18°10	159°54.5'	77.0	09	77.9	70.0	1019	02	4,8	6	7	3	09	3	34.15

Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro- meter (mb.)	Wear- ther	Clouds		Vis- ibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
121	0300	3/25	18°28'	159°33.0'	76.2	07	21	79.1	71.5	1019	02	8	6	7	3	08	3	34.36
122	0600	3/25	18°48'	159°11'	76.1	07	14	77.1	70.3	1020	02	8	2	7	3	09	3	34.40
123	0900	3/25	19°04'	158°50'	76.0	12	26	76.7	69.9	1021	02	8	1	7	3	09	3	34.43
124	1200	3/25	19°23.2'	158°28.5'	76.1	09	16	75.8	71.0	1020	03	8	4	7	3	09	3	34.16
125	1500	3/25	19°42'	158°08'	76.0	10	10	75.8	70.5	1019	03	8	7	7	3	09	3	34.23
126	1800	3/25	19°57'	157°44.2'	75.1	07	17	74.9	70.6	1021	80	0	6	7	5	07	3	34.64
127	2100	3/25	20°05.5'	157°29.2'	74.8	08	19	77.6	71.5	1022	02	8	1	7	5	07	3	34.68
128	0300	3/26	20°31'	157°04.5'	75.2	09	22	77.6	71.0	1018	02	8	2	8	4	08	3	34.49
129	0900	3/26	21°09'	156°30.5'	74.1	09	24	75.2	70.0	1022	02	8	4	7	4	08	3	34.63
130	1500	3/26	21°24.2'	156°03.8'	73.4	11	23	74.1	70.0	1018	03	8	7	6	4	09	3	34.55
131	2000	3/26	21°44.3'	155°36.8'	74.5	10	24	75.3	70.7	1024	14	8	3	7	4	08	3	34.63
132	0000	3/27	22°05.2'	155°12.5'	74.8	11	26	77.0	70.2	1022	03	8	7	7	4	10	6	34.49
133	0400	3/27	22°22.2'	154°48.2'	74.5	10	25	75.5	69.9	1022	01	8	5	7	4	09	6	34.63
134	0800	3/27	22°41.2'	154°24.8'	74.0	10	23	74.9	69.5	1024	02	8	5	7	4	09	6	34.66
135	1200	3/27	22°57'	153°56'	72.0	10	20	73.8	67.0	1024	02	8	7	7	4	09	6	35.00
136	1600	3/27	23°12.5'	153°26.5'	72.7	11	24	72.2	65.9	1024	14	6	7	7	3	09	3	34.95
137	2000	3/27	23°28'	152°56.2'	72.1	10	18	75.4	67.4	1026	02	6	7	7	3	08	3	35.08
138	0000	3/28	23°44.5'	152°24'	72.6	12	22	75.2	66.5	1025	01	8	1	7	3	09	3	34.95
139	0400	3/28	24°01.7'	151°50.5'	72.5	11	18	74.5	66.8	1024	02	8	1	7	3	09	3	35.01
140	0800	3/28	24°13'	151°21.2'	73.0	09	16	73.3	66.8	1027	02	8	2	7	3	09	3	34.77
141	1200	3/28	24°11'	150°51'	72.9	10	20	70.5	67.0	1025	03	8	6	7	3	09	3	34.73
142	1600	3/28	24°09.2'	150°16.8'	71.7	08	22	70.8	66.8	1024	15	8	3	7	3	09	3	35.09
143	2000	3/28	24°09.8'	149°47.5'	72.1	11	19	72.3	62.6	1025	02	8	2	7	3	09	3	34.93
144	0000	3/29	24°08.5'	149°21.8'	72.0	11	21	72.1	64.3	1023	01	8	1	7	4	10	3	34.97
145	0400	3/29	24°05.5'	148°57.8'	71.8	10	20	72.5	65.0	1024	03	8	3	7	4	10	3	35.04
146	0800	3/29	24°02'	148°35'	71.7	09	20	72.5	63.8	1026	01	8	2	7	4	10	3	35.06
147	1200	3/29	23°57.5'	148°09.5'	71.9	10	23	71.6	64.5	1024	02	8	6	7	4	10	3	34.96
148	1615	3/29	23°53.8'	147°43.5'	71.4	10	24	71.3	61.5	1025	15	6	7	7	4	08	4	35.04
149	2000	3/29	23°31'	147°28'	71.4	10	22	72.5	63.2	1025	15	6	7	7	4	09	3	35.06
150	0000	3/30	23°03'	147°11'	71.4	08	20	71.0	65.5	1023	21	8	6	7	4	09	6	35.06
151	0400	3/30	22°36.5'	146°53'	72.4	11	20	71.9	66.2	1021	01	8	5	7	4	10	6	34.97
152	0800	3/30	22°21.5'	146°35.3'	72.2	09	24	72.4	66.9	1023	00	8	6	7	4	10	3	34.76
153	1200	3/30	22°07.2'	146°18.5'	72.2	10	22	71.9	65.0	1021	00	8,4	6	7	4	10	6	34.65
154	1600	3/30	21°53'	146°02'	72.3	09	25	72.4	65.3	1022	15	6	6	7	4	09	6	34.91
155	2000	3/30	21°32.7'	145°46'	72.7	10	19	72.3	66.4	1023	15	8,4	6	7	4	09	3	34.83
156	0000	3/31	21°04'	145°30.8'	72.9	10	20	72.8	64.9	1020	02	8,4	6	7	4	10	6	34.82
157	0400	3/31	20°35.5'	145°16'	72.8	10	20	72.0	65.5	1020	02	8	2	7	4	10	6	34.84
158	0830	3/31	20°05'	145°38.7'	72.9	09	17	72.3	66.5	1022	25	8	7	7	4	10	3	34.84
159	1200	3/31	19°36'	146°03'	73.3	10	19	71.7	67.8	1019	02	8	6	7	4	10	6	34.77
160	1500	3/31	19°11.2'	146°23.8'	73.6	08	19	71.8	67.3	1019	02	8	7	7	3	10	3	34.59



Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
161	1650	3/31	19°00'	146°36'	73.7	09	19	73.0	67.5	1019	15	6	7	7	3	07	3	34.69
162	2225	3/31	19°00.5'	146°37'	73.8	10	20	74.8	69.0	1018	02	4,8	4	7	3	08	3	34.73
163	0035	4/1	19°04'	146°34.5'	73.9	10	12	75.5	69.5	1018	02	8,4	4	7	3	10	3	34.67
164	0300	4/1	18°48'	146°48'	74.3	08	13	75.0	69.8	1018	03	8,4	6	7	3	09	3	34.57
165	0600	4/1	18°23.8'	147°08'	74.0	10	20	73.1	69.0	1018	00	8	2	7	3	09	3	34.60
166	0900	4/1	18°03.8'	147°19.3'	74.5	09	12	74.2	69.8	1018	02	8	1	7	3	09	3	34.57
167	1200	4/1	17°36'	147°38'	74.7	08	11	74.0	69.5	1017	02	8	1	7	3	09	3	34.48
168	1500	4/1	17°09.2'	147°56'	74.6	08	13	74.1	69.9	1016	03	8	3	7	3	09	3	34.57
169	1800	4/1	16°43'	148°14.2'	74.4	07	14	75.6	70.7	1018	02	8	3	7	3	08	3	34.64
170	2100	4/1	16°17.5'	148°32.3'	75.2	06	18	76.7	71.8	1018	02	8	3	7	3	08	3	34.49
171	0000	4/2	15°51.2'	148°51.2'	75.5	07	20	75.8	71.3	1015	02	8	3	7	3	08	3	34.49
172	0300	4/2	15°25'	149°10'	75.9	06	17	76.1	71.5	1015	03	8	6	7	3	07	3	34.32
173	0600	4/2	14°59'	149°27.5'	75.9	05	22	76.7	71.2	1015	02	8	2	7	3	07	3	34.24
174	0900	4/2	15°18'	149°37.2'	75.7	06	25	74.7	71.4	1016	03	8	6	6	3	07	3	34.32
175	1200	4/2	15°43'	149°51.8'	75.2	06	26	75.0	69.6	1014	01	8	2	7	4	07	3	34.27
176	1500	4/2	16°07'	150°06.8'	75.3	06	24	74.4	69.6	1014	03	8	5	7	4	07	3	34.49
177	1740	4/2	16°20.3'	150°19.2'	75.1	05	25	75.2	66.5	1017	02	4,8	2	7	6	05	3	34.55
178	2210	4/2	16°25'	150°24.5'	75.7	06	17	77.0	69.7	1015	02	8	3	7	5	05	3	34.50
179	0030	4/3	16°28'	150°26'	75.5	06	29	75.0	70.0	1014	15	8	6	7	4	06	6	34.53
180	0300	4/3	16°45'	150°34'	75.6	06	24	77.0	70.5	1014	02	8	4	7	4	06	6	34.58
181	0600	4/3	17°08.7'	150°48.3'	75.4	06	23	75.5	70.0	1016	80	8	2	7	4	06	6	34.57
182	0900	4/3	17°31'	151°03.7'	75.2	07	23	73.7	69.7	1017	02	8	2	7	4	06	6	34.54
183	1200	4/3	17°54'	151°18.2'	75.2	05	30	73.5	69.0	1016	03	8	3	7	5	06	6	34.48
184	1500	4/3	18°17'	151°32.8'	74.1	05	30	72.3	66.0	1015	01	5	1	7	5	06	6	34.57
185	1800	4/3	18°39.8'	151°47'	74.0	04	27	72.4	67.0	1018	02	5	1	7	6	04	6	34.57
186	2100	4/3	19°03'	152°01.2'	74.3	06	25	73.1	66.7	1019	02	6	1	7	6	04	6	34.65
187	0000	4/4	19°29'	152°14.2'	74.7	06	23	74.5	66.4	1017	03	8,4	4	7	5	05	6	34.65
188	0300	4/4	19°55'	152°27'	74.2	08	16	73.8	67.6	1017	03	8	7	7	4	04	6	34.56
189	0600	4/4	20°21.2	152°40'	73.9	05	19	72.7	64.4	1019	02	8	2	7	4	04	6	34.64
190	0900	4/4	20°47.5'	152°52'	74.0	05	24	70.8	65.4	1020	80	8	5	6	4	04	6	34.63
191	1200	4/4	21°13'	153°04.5'	74.0	08	16	71.6	67.0	1018	01	8	2	7	4	05	6	34.68
192	1500	4/4	21°38.2'	153°17'	74.0	09	23	70.0	66.0	1018	02	8	2	7	4	07	6	34.45
193	1705	4/4	21°46.5'	153°27'	73.9	09	15	73.4	67.0	1019	15	8	2	7	4	07	3	34.77
194	2215	4/4	21°46.2'	153°26.5'	74.4	09	09	72.7	66.7	1018	80	6,8	6	7	4	04	3	34.71
195	0045	4/5	21°48'	153°23'	74.3	07	16	73.5	68.9	1016	15	8	5	7	4	04	3	34.65
196	0300	4/5	22°05.5'	153°34.5'	74.2	09	16	73.4	67.7	1016	02	8	5	7	3	04	3	34.77
197	0600	4/5	22°30'	153°51'	74.0	11	14	72.4	67.0	1018	18	8	6	7	3	04	3	34.73
198	0900	4/5	22°53'	154°06'	71.6	09	12	70.6	67.4	1019	25	8	3	6	3	04	3	35.23
199	1200	4/5	23°18.7'	154°22.2'	72.0	08	16	70.5	66.4	1018	01	8	2	7	3	05	3	35.14
200	1500	4/5	23°44'	154°39'	71.5	10	14	70.6	67.2	1017	02	8	2	7	3	07	3	35.23

Table 3.--Summary of observations at bathythermograph lowerings, Hugh M. Smith cruise 51 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro meter (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
201	1800	4/5	24°10'	154°52'	71.4	09	14	69.6	66.7	1018	18	0	6	7	3	05	3	35.23
202	2100	4/5	23°48'	155°12.2'	73.0	14	14	72.8	68.5	1019	15	8	3	7	3	13	1	34.96
203	0000	4/6	23°23'	155°33'	73.0	10	08	72.8	67.7	1016	02	8	2	7	2	08	1	35.10
204	0300	4/6	22°59'	155°52.2'	74.1	14	13	73.9	67.5	1014	03	8	3	7	2	15	1	34.80
205	0600	4/6	22°37'	156°13.5'	74.1	14	14	74.2	68.4	1014	00	8	1	7	2	15	1	34.72
206	0900	4/6	22°22.2'	156°26.8'	73.7	15	08	74.5	67.9	1015	00	8	1	7	2	15	1	34.89
207	1200	4/6	22°10'	156°45'	74.0	18	11	74.3	69.3	1014	03	8	2	7	2	15	1	34.80
208	1500	4/6	21°54.5'	157°03'	74.0	26	14	74.0	68.0	1013	01	8	1	7	2	15	1	34.82
209	1800	4/6	21°32.5'	157°27'	73.9	24	08	75.0	68.5	1016	02	8	1	8	2	17	1	34.80

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44  
(Recording and coding of data follows U.S. Navy Hydrographic Office, 1956.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
1	0020	5/1	21°48.0'	158°22.0'	76.0	09	18	78.2	71.4	1017	02	4	3	7	3	08	1	34.75
2	0305	5/1	22°02.5'	158°24.0'	74.7	10	18	75.6	71.0	1016	01	1	4	7	3	08	1	35.01
3	0605	5/1	22°31.0'	158°24.0'	74.1	11	18	74.1	69.6	1017	00	X 1/	9	7	3	08	1	35.02
4	0905	5/1	22°49.0'	158°24.5'	74.1	07	13	74.0	69.5	1019	00	X	9	7	3	XX	X	34.98
5	1200	5/1	23°15.0'	158°21.0'	74.2	12	13	74.0	69.9	1017	00	X	2	7	3	08	1	35.00
6	1505	5/1	23°40.0'	158°18.5'	73.9	11	13	74.1	69.0	1016	00	8	2	7	3	08	1	35.43
7	1800	5/1	24°06.0'	158°15.0'	73.4	12	16	75.1	69.5	1018	00	4	7	8	2	08	1	35.05
8	2100	5/1	24°05.5'	158°43.0'	74.2	12	14	75.0	69.6	1019	02	2	6	8	2	09	1	34.97
9	0000	5/2	24°05.5'	159°09.5'	75.0	12	13	75.3	69.8	1017	02	2	5	8	3	09	1	34.97
10	0300	5/2	24°05.0'	159°37.0'	75.4	12	18	74.9	69.8	1016	03	8	6	8	3	10	1	34.82
11	0600	5/2	23°50.0'	159°56.0'	74.9	12	14	74.5	70.0	1017	02	8	5	8	3	10	1	34.94
12	0900	5/2	23°35.0'	160°11.5'	75.0	11	14	74.1	69.8	1018	00			8	3	XX	X	35.21
13	1200	5/2	23°11.0'	160°27.5'	75.0	13	14	75.0	69.6	1017	00	8	2	7	3	XX	X	34.84
14	1500	5/2	22°49.5'	160°42.5'	75.4	10	13	74.5	69.5	1016	02	8	2	7	3	XX	X	34.74
15	1800	5/2	22°26.5'	160°57.5'	76.0	10	04	75.3	69.9	1018	02	1	3	8	2	12	1	34.57
16	1900	5/2	22°28.0'	161°05.0'	76.3	10	14	75.3	69.8	1018	01	8	2	8	2	12	1	
17	2350	5/2	22°28.0'	161°05.0'	77.0	10	05	77.5	72.0	1017	02	8	4	8	2	10	1	34.57
18	0150	5/3	22°26.5'	160°57.5'	77.2	10	05	78.2	71.5	1016	02	4	2	8	2	15	1	34.58
19	0600	5/3	21°58.0'	161°20.0'	77.5	07	10	76.8	70.4	1017	02	8	3	8	2	09	1	34.57
20	0900	5/3	21°39.0'	161°34.0'	77.5	08	08	76.6	70.8	1018	00	X	X	8	2	09	1	34.45
21	1200	5/3	21°17.5'	161°51.5'	76.9	08	08	76.6	71.0	1017	00	8	2	7	2	09	1	34.50
22	1500	5/3	20°56.0'	162°09.0'	77.5	08	10	76.4	70.0	1017	00	8	2	7	2	09	1	34.50
23	1800	5/3	20°34.0'	162°27.0'	77.3	07	11	76.3	69.9	1017	02	8	1	8	2	11	1	34.58
24	2100	5/3	20°13.0'	162°44.0'	77.9	07	10	78.2	71.4	1018	02	8	1	8	2	09	1	34.66
25	0000	5/4	19°51.0'	163°01.5'	78.6	07	11	79.0	71.4	1017	02	8	1	8	3	12	1	34.53
26	0300	5/4	19°42.5'	162°36.0'	77.9	05	12	77.7	71.7	1016	02	8	1	8	3	05	1	34.51
27	0600	5/4	19°34.0'	162°10.0'	78.0	07	10	77.0	71.2	1017	03	8	6	8	3	07	1	34.52
28	0900	5/4	19°26.0'	161°49.5'	78.1	07	12	76.3	71.9	1018	01	8	3	8	3	07	1	34.54
29	1200	5/4	19°18.0'	161°24.0'	77.2	11	09	76.9	70.2	1016	03	8	7	7	3	XX	1	34.45
30	1500	5/4	19°09.5'	160°59.0'	77.3	04	14	76.5	72.8	1015	02	8	7	7	3	XX	1	34.41
31	1640	5/4	19°07.0'	160°58.5'	77.5	09	18	75.8	68.6	1016	16	8	6	7	3	09	1	34.41
32	2210	5/4	19°05.0'	160°57.5'	77.7	09	16	78.2	71.5	1017	02	4	5	7	4	10	3	34.40
33	0005	5/5	19°05.5'	160°53.5'	77.8	08	16	78.8	71.1	1015	01	8	1	8	4	08	3	34.52
34	0300	5/5	19°20.0'	160°34.0'	77.5	07	13	78.1	71.3	1014	02	8	1	8	4	06	1	34.49
35	0600	5/5	19°34.0'	160°12.0'	77.8	08	12	77.8	71.3	1016	03	8	4	8	3	08	1	34.45
36	0900	5/5	19°47.0'	159°53.0'	77.0	08	10	77.8	71.8	1018	00	X	X	8	3	08	1	34.47
37	1200	5/5	20°00.0'	159°31.0'	77.1	10	14	77.0	71.0	1016	00	X	8	7	4	XX	3	34.47
38	1500	5/5	20°12.5'	159°10.0'	76.8	07	20	74.1	70.4	1016	00	X	8	7	4	XX	3	34.48
39	1800	5/5	20°26'	158°47.0'	76.9	08	14	76.2	69.9	1017	01	8	6	8	4	08	3	34.57
40	2100	5/5	20°42.0'	158°26.0'	76.0	08	16	76.8	69.8	1018	01	8	1	8	4	08	3	34.73

1/ X indicates that no observation was recorded.

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, µg at./L.
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
41	0000	5/6	20°57.5'	158°08.5'	77.0	07	18	78.5	71.4	1017	03	8	4	7	4	06	3	34.57
42	0025	5/7	21°24.0'	157°33.0'	75.9	06	19	78.0	71.5	1018	00	8	4	7	4	06	3	34.75
43	0300	5/7	21°40.0'	157°23.0'	74.6	07	18	76.8	70.8	1017	03	8	5	7	4	06	3	34.95
44	0600	5/7	21°57.5'	157°11.0'	74.3	08	25	75.6	71.0	1019	01	8	2	7	4	06	3	35.00
45	0900	5/7	22°16.0'	156°55.0'	74.5	08	26	75.4	71.0	1020	02	8	2	7	4	06	3	34.95
46	1205	5/7	22°31.0'	156°38.0'	74.4	08	22	75.6	70.0	1020	02	8	2	7	4	06	3	34.92
47	1505	5/7	22°46.0'	156°22.5'	74.7	08	24	75.3	70.1	1019	80	6	6	7	4	06	3	34.95
48	1800	5/7	23°01.5'	156°05.5'	73.5	07	23	73.2	69.3	1021	50	0	7	7	4	06	3	35.10
49	2100	5/7	23°19.0'	155°50.0'	72.9	06	19	74.4	68.0	1022	01	8	5	8	4	06	4	35.18
50	0000	5/8	23°27.0'	155°30.0'	74.7	06	22	77.1	69.3	1021	02	8	3	7	5	07	4	34.91
51	0300	5/8	23°28.0'	155°07.0'	75.0	06	22	75.4	68.3	1021	02	8	3	7	5	07	4	34.88
52	0600	5/8	23°27.0'	154°45.0'	75.0	05	22	73.2	69.0	1022	02	8	3	7	4	07	4	34.79
53	0900	5/8	23°25.0'	154°25.0'	75.0	05	24	73.2	68.4	1023	00	X	X	7	5	07	4	34.76
54	1200	5/8	23°26.0'	154°04.0'	74.8	06	21	75.4	69.2	1022	02	8	2	7	5	07	4	34.76
55	1500	5/8	23°40.0'	153°47.5'	75.0	07	24	74.5	68.8	1022	15	6	6	7	5	07	4	34.78
56	1800	5/8	23°55.0'	153°29.5'	74.6	07	22	74.4	68.7	1023	15	8	4	7	4	06	4	34.77
57	2100	5/8	24°10.5'	153°14.0'	73.5	06	22	72.0	67.0	1024	15	6	6	7	5	07	4	35.10
58	0000	5/9	24°30.0'	152°55.5'	74.1	06	18	73.7	65.4	1023	02	8	4	7	6	07	4	35.04
59	0300	5/9	24°30.0'	152°30.0'	74.2	05	22	73.0	67.5	1021	02	8	4	7	5	07	4	34.85
60	0600	5/9	24°30.5'	152°04.0'	72.9	05	24	69.9	65.2	1022	00	X	X	7	5	07	4	35.07
61	0900	5/9	24°12.5'	151°52.0'	72.9	04	21	70.2	62.2	1023	00	X	X	7	5	XX	X	35.09
62	1200	5/9	23°49.5'	151°42.0'	73.0	04	22	69.7	59.3	1021	00	8	5	7	5	XX	X	35.04
63	1500	5/9	23°28.0'	151°53.5'	73.9	06	18	69.8	59.0	1020	02	8	2	7	5	08	4	34.83
64	1800	5/9	23°02.5'	151°42.0'	74.0	04	14	71.4	63.5	1021	02	8	2	7	4	07	3	34.84
65	2100	5/9	22°40.0'	151°27.0'	73.0	05	18	71.9	64.0	1021	03	6	6	7	4	06	1	35.12
66	0000	5/10	22°21.5'	151°10.5'	73.6	07	15	71.4	65.7	1019	15	6	6	7	5	06	1	35.00
67	0300	5/10	22°02.0'	150°53.0'	73.5	08	13	74.1	66.8	1018	15	6	6	7	4	06	1	35.01
68	0600	5/10	21°42.0'	150°35.0'	74.1	10	10	72.0	65.6	1018	00	X	X	7	4	06	1	34.90
69	0900	5/10	21°24.0'	150°19.0'	74.5	06	14	72.5	66.5	1019	00	X	X	7	4	06	1	34.83
70	1200	5/10	21°03.5'	150°01.0'	74.6	04	15	72.7	67.8	1017	00	8	1	7	4	06	1	34.80
71	1500	5/10	20°43.0'	149°42.5'	74.2	05	12	73.2	65.5	1016	03	3	5	7	4	05	1	34.81
72	1800	5/10	20°24.0'	149°49.0'	74.5	05	15	73.4	67.6	1017	15	6	7	7	3	05	1	34.81
73	2100	5/10	20°05.0'	150°07.5'	75.2	05	14	74.2	67.6	1017	15	6	7	7	3	05	1	34.73
74	0000	5/11	19°40.0'	150°20.0'	75.8	07	16	74.8	67.9	1016	15	6	6	7	3	07	1	34.73
75	0300	5/11	19°13.0'	150°33.0'	76.0	05	17	74.3	68.0	1014	15	6	6	7	3	06	1	34.66
76	0600	5/11	18°45.0'	150°45.5'	75.8	05	15	73.7	66.6	1015	01	8	1	7	3	06	1	34.72
77	0900	5/11	18°23.0'	150°56.5'	75.7	07	15	74.0	68.3	1016	00	X	X	7	3	06	1	34.71
78	1200	5/11	17°55.5'	151°09.5'	75.7	05	16	74.7	68.9	1014	00	X	6	7	3	XX	1	34.64
79	1500	5/11	17°28.5'	151°22.0'	75.5	03	20	73.4	67.5	1012	15	4	6	7	3	05	1	34.69
80	1640	5/11	17°19.0'	151°30.0'	75.7	05	14	73.7	65.9	1013	15	8	6	7	3	04	1	34.66

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44 (con.)

Ser. No.	Time Date, 1959 (GCT)	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
					Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
81	2200	5/11	17°13.0'	76.0	02	16	75.8	68.9	1013	02	4	6	8	4	36	1	34.71
82	2355	5/11	17°17.5'	76.0	04	16	76.5	69.5	1012	02	1	6	8	3	05	1	34.39
83	0300	5/12	16°53.5'	76.7	04	16	78.1	69.5	1012	15	8	6	8	3	07	1	34.43
84	0600	5/12	16°31.0'	76.8	03	19	75.2	67.8	1013	01	X	5	7	3	04	1	34.67
85	0900	5/12	16°12.5'	77.1	05	19	75.0	68.0	1014	00	X	X	7	3	04	1	34.45
86	1200	5/12	15°50.0'	77.4	05	19	75.7	68.7	1012	00	8	6	7	3	04	1	34.44
87	1500	5/12	16°12.0'	76.7	07	18	77.3	69.2	1012	02	8	7	7	3	04	1	34.52
88	1800	5/12	16°34.0'	76.5	04	17	74.8	67.2	1013	01	4	6	7	3	03	1	34.54
89	2100	5/12	16°57.0'	76.3	07	18	74.8	67.0	1014	01	8	2	7	3	03	1	34.61
90	0000	5/13	17°21.5'	76.5	05	15	75.6	68.8	1013	01	8	1	8	3	04	1	34.61
91	0300	5/13	17°46.0'	76.6	07	19	77.7	70.1	1013	02	8	2	8	5	05	3	34.61
92	0600	5/13	18°11.0'	75.4	06	16	74.6	68.8	1015	03	8	5	8	4	05	3	34.72
93	0900	5/13	18°27.0'	75.9	07	09	73.4	68.5	1016	52	X	X	6	4	XX	X	34.70
94	1200	5/13	18°51.0'	76.0	10	12	74.6	68.5	1016	00	8	2	6	3	04	1	34.56
95	1500	5/13	19°14.0'	75.8	07	14	76.6	68.7	1016	15	6	4	7	3	03	1	34.59
96	1800	5/13	19°37.0'	75.4	08	13	75.2	67.0	1018	15	8	5	7	3	05	1	34.58
97	2100	5/13	20°01.0'	75.8	07	15	73.5	68.6	1018	01	4	5	7	3	04	1	34.66
98	0000	5/14	20°24.5'	75.8	06	16	74.7	70.2	1017	03	4	6	7	3	04	1	34.70
99	0300	5/14	20°45.0'	75.7	07	15	75.4	69.6	1017	02	4	6	7	3	05	1	34.68
100	0600	5/14	21°06.0'	74.8	07	15	74.0	67.8	1019	02	4	6	7	3	05	1	34.75
101	1000	5/14	21°29.5'	74.5	06	22	73.6	67.8	1019	01	X	4	7	3	05	1	34.77
102	1400	5/14	21°57.0'	74.3	08	21	73.4	68.5	1019	02	X	2	7	3	06	1	34.82
103	1837	5/14	22°23.0'	74.9	07	23	73.9	68.4	1021	15	6	7	6	3	07	1	34.75
104	2350	5/14	22°29.0'	75.2	08	15	75.0	69.2	1020	02	8	2	7	4	06	3	34.74
105	0145	5/15	22°31.5'	75.0	09	16	75.9	70.4	1019	25	8	3	7	4	06	3	34.75
106	0600	5/15	23°01.0'	75.0	09	16	74.4	68.8	1020	15	8	5	7	3	06	1	34.75
107	1000	5/15	23°23.0'	75.0	09	18	73.8	69.4	1021	00	X	X	7	3	06	1	34.77
108	1400	5/15	23°48.0'	75.0	07	15	73.0	69.3	1020	00	8	4	6	3	06	1	34.75
109	1650	5/15	24°01.0'	74.8	07	20	72.6	68.6	1021	25	6	6	7	4	07	3	34.75
110	2155	5/15	24°02.5'	75.0	08	18	74.0	68.5	1021	02	8	4	7	4	08	3	34.76
111	2335	5/15	24°03.0'	75.0	09	16	74.2	68.6	1020	02	8	4	7	4	10	3	34.77
112	0300	5/16	23°35.5'	75.0	09	22	74.5	69.0	1019	02	8	2	7	4	10	3	34.76
113	0600	5/16	23°11.0'	74.9	09	20	74.3	68.8	1020	02	8	2	7	4	09	3	34.77
114	0900	5/16	22°53.5'	75.2	09	20	74.0	69.3	1020	03	8	4	7	3	09	3	34.74
115	1205	5/16	22°32.5'	75.5	08	20	74.5	70.0	1019	02	8	4	7	3	09	3	34.66
116	1500	5/16	22°12.0'	74.5	08	19	74.3	69.3	1018	02	8	3	7	3	10	3	34.84
117	1800	5/16	21°47.0'	73.5	11	21	72.8	68.7	1019	81	6	8	6	3	09	3	35.18
118	2100	5/16	21°18.5'	74.5	09	16	75.1	70.0	1019	01	8	2	7	3	09	3	35.03
119	0000	5/17	20°52.0'	74.8	09	17	75.3	70.6	1018	15	6	2	7	3	10	3	34.97
120	0300	5/17	20°25.0'	76.3	08	21	76.7	71.5	1016	02	4	2	7	4	07	3	34.52

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
121	0600	5/17	20°03.0'	156°14.5'	77.0	04	21	76.3	68.8	1016	03	4	6	7	3	04	1	34.50
122	0900	5/17	19°44.0'	156°25.7'	76.9	09	15	77.8	69.5	1017	02	4	6	7	3	XX	1	34.52
123	1200	5/17	19°21.0'	156°42.0'	76.6	32	03	77.5	70.9	1016	02	4	5	7	3	XX	1	34.70
124	1500	5/17	18°57.0'	157°00.0'	76.8	29	04	77.2	70.5	1015	02	4	6	7	3	XX	1	34.82
125	1800	5/17	18°33.5'	157°14.5'	76.5	10	18	77.8	71.2	1017	02	4	6	7	3	10	4	34.58
126	2100	5/17	18°09.0'	157°32.5'	77.2	10	20	76.8	72.2	1017	02	3	6	7	4	09	4	34.46
127	0000	5/18	17°41.0'	157°51.5'	77.3	10	22	77.7	73.0	1015	15	3	7	7	4	09	4	34.47
128	0300	5/18	17°57.5'	157°57.0'	77.3	09	18	77.5	73.5	1015	02	4	5	7	5	08	4	34.50
129	0600	5/18	18°23.0'	157°59.5'	76.9	10	18	76.6	72.3	1016	01	4	3	7	3	07	3	34.49
130	0900	5/18	18°42.0'	157°57.0'	77.2	10	19	77.0	72.5	1018	00	X	X	7	4	XX	X	34.46
131	1200	5/18	19°07.0'	157°56.0'	76.8	10	13	76.8	71.9	1017	00	4	6	7	3	07	1	34.50
132	1500	5/18	19°34.0'	157°56.5'	76.8	09	03	74.8	72.5	1016	15	6	4	7	3	07	1	34.54
133	1800	5/18	20°02.5'	157°57.5'	76.8	10	14	76.0	72.4	1018	15	6	5	7	2	08	1	34.55
134	2100	5/18	20°32.0'	157°55.5'	77.2	04	10	76.0	72.0	1018	02	6	5	7	3	07	1	34.48
135	0000	5/19	20°54.0'	157°57.0'	77.8	05	07	77.8	72.4	1017	02	8	3	7	3	05	1	34.58
136	2100	5/20	21°04.0'	158°05.0'	77.0	00	00	77.2	72.0	1016	00	8	6	7	0	15	1	34.66
137	0010	5/21	21°00.0'	158°14.0'	77.9	20	07	77.0	72.0	1015	02	4	7	7	1	18	1	34.73
138	0300	5/21	20°41.5'	158°28.0'	77.6	20	06	77.1	72.0	1014	02	8	4	7	1	15	1	34.73
139	0600	5/21	20°24.0'	158°43.5'	77.3	17	06	76.4	71.8	1015	03	8	6	7	1	17	1	34.58
140	0900	5/21	20°05.0'	158°52.5'	77.2	20	05	76.0	71.7	1016	01	4	4	7	1	17	1	34.53
141	1200	5/21	19°45.0'	159°06.5'	77.8	19	06	76.1	71.0	1015	02	4	2	7	1	16	1	34.32
142	1500	5/21	19°23.5'	159°21.5'	77.7	18	05	76.0	71.0	1014	15	4	2	7	1	16	1	34.32
143	1800	5/21	19°08.5'	159°40.0'	78.2	13	07	76.8	71.0	1015	02	8	2	7	1	13	1	34.32
144	2100	5/21	18°53.0'	159°59.0'	79.2	08	03	77.0	71.0	1016	02	8	2	8	1	13	1	34.30
145	0000	5/22	18°37.0'	160°20.0'	80.6	07	04	79.1	71.2	1015	02	8	2	8	1	14	1	34.41
146	0300	5/22	18°20.0'	160°41.5'	79.5	12	07	77.7	71.7	1014	02	8	1	8	1	14	1	34.39
147	0600	5/22	18°03.0'	161°03.0'	78.9	13	06	77.5	71.8	1014	02	8	1	8	1	14	2	34.34
148	0900	5/22	18°22.5'	161°01.0'	78.4	07	06	77.2	71.8	1016	02	8	1	8	1	14	2	34.57
149	1200	5/22	18°45.0'	161°03.0'	78.0	00	11	74.9	71.8	1015	02	8	2	8	1	33	2	34.57
150	1500	5/22	19°07.5'	161°04.0'	77.5	03	17	75.0	72.0	1014	15	6	6	7	3	33	3	34.52
151	1800	5/22	19°29.5'	161°05.0'	77.2	02	19	74.0	70.0	1015	15	6	8	6	3	35	3	34.52
152	2100	5/22	19°51.5'	161°06.5'	78.0	02	19	75.0	68.0	1016	02	6	8	6	3	36	3	34.37
153	0000	5/23	20°17.5'	161°07.0'	77.8	04	17	75.8	67.8	1015	02	4	6	6	3	02	3	34.41
154	0300	5/23	20°41.0'	161°06.0'	77.9	04	18	75.0	66.7	1014	02	6	7	6	3	02	3	34.34
155	0600	5/23	21°05.0'	161°06.0'	77.4	05	17	74.2	65.8	1015	01	6	6	7	3	36	3	34.35
156	0900	5/23	21°27.0'	161°03.0'	77.0	05	13	72.5	63.6	1017	00	X	X	7	3	36	3	34.55
157	1200	5/23	21°49.5'	161°03.0'	75.4	03	10	73.0	64.5	1016	00	4	6	7	3	02	3	34.92
158	1500	5/23	22°12.5'	161°03.5'	75.4	00	06	72.0	61.9	1015	00	4	6	7	2	02	1	34.89
159	2105	5/23	22°28.0'	160°37.0'	75.9	02	08	78.0	63.2	1017	15	6	7	7	2	36	1	34.84
160	0000	5/24	22°49.0'	160°37.0'	75.4	03	12	73.5	64.7	1016	02	6	6	7	2	36	1	34.88

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)	
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.			
161	0300	5/24	22°49.0'	161°03.0'	75.9	03	12	74.0	67.0	1015	02	8	5	7	3	36	4	34.89	0.19
162	0600	5/24	23°07.0'	161°10.0'	76.2	04	11	72.0	64.6	1016	15	6	7	7	3	02	4	34.76	
163	0900	5/24	23°27.0'	161°05.2'	75.6	03	10	70.2	65.0	1017	01	4	4	7	3	02	4	34.88	
164	1200	5/24	23°54.5'	161°06.0'	74.8	32	08	69.0	64.5	1016	25	8	2	7	3	02	4	34.99	0.13
165	1500	5/24	24°22.0'	161°07.0'	74.8	32	03	67.0	63.4	1016	15	6	7	6	2	02	4	34.82	
166	1800	5/24	24°49.0'	161°08.0'	74.1	03	07	68.0	63.5	1017	15	6	7	6	2	01	1	34.96	
167	2100	5/24	24°37.5'	160°48.0'	74.0	06	05	70.6	64.3	1017	01	8	2	7	2	01	1	35.11	0.15
168	0000	5/25	24°23.0'	160°28.0'	76.1	06	06	72.0	64.7	1017	02	8	2	7	2	01	4	34.83	
169	0300	5/25	24°07.0'	160°04.5'	75.9	05	08	72.5	65.5	1016	15	8	5	7	2	02	4	34.72	
170	0600	5/25	23°49.0'	159°42.0'	76.0	07	09	72.3	63.8	1017	03	6	7	7	2	02	1	34.68	0.08
171	0900	5/25	23°31.0'	159°25.0'	74.4	11	08	72.2	64.0	1018	01	6	2	7	2	02	1	35.09	
172	1200	5/25	23°10.0'	159°03.0'	75.2	10	10	75.2	66.5	1016	00	4	7	6	2	XX	1	34.86	
173	1500	5/25	22°49.0'	158°40.0'	74.8	09	13	73.4	66.7	1016	00	4	6	6	2	09	1	35.06	0.13
174	1800	5/25	22°29.0'	158°19.5'	74.4	07	12	73.0	67.4	1017	25	6	7	7	3	09	1	35.05	
175	2105	5/25	22°09.0'	158°02.5'	75.2	08	11	75.0	70.2	1017	01	8	5	7	2	09	1	35.07	
176	0000	5/26	21°52.5'	157°55.5'	76.0	09	10	76.0	71.6	1016	02	8	2	7	2	10	1	34.87	0.08
177	0300	5/27	21°48.0'	157°21.0'	76.8	12	15	76.2	72.3	1014	02	4	6	8	3	11	1	34.67	
178	0600	5/27	22°02.5'	156°56.5'	75.1	12	13	75.2	71.6	1016	01	6	5	8	3	11	1	35.13	
179	0900	5/27	22°15.0'	156°36.0'	75.3	13	12	75.0	71.2	1018	00	X	X	7	3	11	1	34.92	0.13
180	1200	5/27	22°33.0'	156°12.5'	75.1	14	17	74.9	70.8	1016	00	4	2	7	3	12	1	35.07	
181	1500	5/27	22°51.0'	155°49.0'	75.1	15	14	74.9	70.0	1017	00	1	4	7	3	12	1	35.05	
182	1800	5/27	23°12.0'	155°27.0'	76.2	14	09	75.8	70.0	1018	03	1	7	7	2	12	1	34.75	0.14
183	2100	5/27	23°33.0'	155°03.0'	76.2	13	11	75.9	70.7	1019	02	8	7	7	2	12	1	34.78	
184	0000	5/28	23°49.0'	154°38.0'	76.6	13	12	75.9	70.0	1017	02	8	6	7	2	11	1	34.82	
185	0300	5/28	24°06.0'	154°13.0'	76.4	11	12	75.6	69.1	1017	02	5	7	7	2	11	1	34.78	0.13
186	0600	5/28	24°26.0'	153°44.0'	75.0	12	11	74.8	68.5	1019	03	6	6	7	2	11	1	35.05	
187	0900	5/28	24°38.0'	153°21.0'	75.0	12	11	74.2	69.0	1020	00	X	X	7	2	11	1	34.92	
188	1200	5/28	24°51.0'	152°57.0'	74.9	12	10	73.5	68.9	1018	00	8	2	7	2	11	1	35.08	0.14
189	1500	5/28	24°26.5'	152°56.5'	75.2	13	12	73.7	69.0	1018	00	2	2	7	2	12	1	34.81	
190	1800	5/28	24°00.0'	152°56.0'	76.0	11	10	74.5	69.2	1019	03	2	7	7	2	13	1	34.81	
191	2100	5/28	23°32.5'	152°52.5'	75.9	11	10	75.4	69.7	1019	02	2	7	7	2	12	1	34.72	0.14
192	0000	5/29	23°02.5'	152°48.0'	76.0	12	12	75.6	70.0	1018	15	2	7	7	3	13	1	34.75	
193	0300	5/29	22°32.0'	152°44.0'	75.8	12	10	75.4	70.0	1018	02	2	2	7	3	13	1	34.82	
194	0600	5/29	22°01.0'	152°40.0'	75.2	14	09	75.0	69.0	1019	01	X	2	7	3	11	1	34.99	0.13
195	0900	5/29	21°47.0'	152°39.0'	75.1	14	09	75.0	70.4	1019	00	X	X	7	3	11	1	34.99	
196	1200	5/29	21°18.0'	152°44.0'	75.7	08	17	75.1	70.7	1018	00	X	7	6	3	09	1	34.83	
197	1500	5/29	20°48.5'	152°49.0'	76.6	10	21	74.1	71.1	1016	25	6	6	7	4	09	1	34.75	0.14
198	1800	5/29	20°19.0'	152°53.0'	77.0	08	20	75.2	72.1	1018	15	6	6	7	4	10	1	34.69	
199	2100	5/29	19°49.5'	152°58.0'	77.0	09	15	76.8	72.5	1018	25	6	6	7	3	09	3	34.75	
200	0000	5/30	19°20.5'	153°00.5'	77.4	07	19	77.2	73.1	1016	15	8	3	7	3	11	3	34.75	

Table 4.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 44 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro- meter (mb)	Wear- ther	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO4-P, (ug. at./l.)	
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.			
201	0300	5/30	18°50.5'	153°02.5'	77.2	09	17	77.2	73.1	1015	15	8	4	7	3	10	3	34.65	
202	0600	5/30	18°22.0'	153°04.0'	77.0	09	18	76.6	72.8	1017	00	X	X	7	4	09	3	34.58	0.19
203	0900	5/30	17°52.5'	153°05.0'	77.4	09	19	75.8	73.0	1017	00	X	X	6	4	09	3	34.66	
204	1200	5/30	17°24.0'	153°06.0'	77.2	07	19	76.2	71.5	1016	00	8	2	6	3	10	3	34.60	
205	1500	5/30	16°55.5'	153°07.0'	77.8	08	21	76.0	70.7	1015	00	4	4	6	3	10	3	34.54	
206	1800	5/30	17°10.0'	153°30.0'	77.5	07	16	76.6	70.2	1017	01	8	2	7	3	09	3	34.57	
207	2100	5/30	17°24.5'	153°55.0'	77.8	07	16	76.8	71.1	1017	03	8	4	7	3	07	3	34.57	
208	0000	5/31	17°40.0'	154°21.0'	77.6	05	15	77.1	70.3	1015	02	8	2	7	4	08	3	34.73	
209	0300	5/31	17°56.5'	154°47.0'	77.5	07	15	77.0	70.8	1014	02	8	2	7	3	06	3	34.67	
210	0600	5/31	18°13.0'	155°13.5'	77.3	06	17	76.3	70.5	1016	02	8	2	6	3	05	3	34.59	0.16
211	0900	5/31	18°25.0'	155°33.0'	77.3	06	22	76.0	70.2	1017	00	X	X	6	3	05	3	34.55	
212	1600	5/31	19°08.0'	156°16.0'	77.1	06	05	76.5	71.0	1015	15	1	2	6	3	XX	X	34.59	
213	0300	6/1	20°12.0'	156°16.0'	77.4	06	22	77.0	71.1	1014	02	2	1	7	3	05	1	34.68	
214	0600	6/1	20°20.5'	156°36.0'	76.5	07	18	75.4	70.0	1016	03	1	2	7	3	06	3	34.73	
215	0900	6/1	20°37.0'	157°02.0'	78.2	13	07	76.0	67.8	1017	00	X	X	7	2	XX	X	34.48	
216	1200	6/1	20°53.0'	157°27.5'	77.1	08	19	75.2	70.0	1016	00	X	1	7	2	XX	X	34.66	
217	1500	6/1	21°13.5'	157°51.0'	76.0	06	15	75.0	70.0	1016	00	8	1	7	2	XX	X	34.81	



Table 5.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 45  
(Recording and coding of data follows U.S. Navy Hydrographic Office, 1956.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro- meter (mb.)	Wear- ther	Clouds		Vis- ibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
1	2200	7/17	21°09'	158°01'	78.6	06	18	79.0	75.0	1019	00	8	2	8	3	08	1	34.54
2	0100	7/18	20°51'	158°21'	79.5	07	15	80.0	75.5	1018	03	8	6	8	3	08	1	34.60
3	0400	7/18	20°31'	158°43'	79.5	06	08	79.5	75.2	1017	02	8	4	8	2	07	1	34.59
4	0700	7/18	20°16'	158°54'	79.0	06	07	79.0	76.0	1019	02	X 1/	X	X	2	07	1	34.50
5	1000	7/18	19°56'	159°11'	78.9	07	13	79.1	75.3	1019	02	X	X	X	2	07	1	34.49
6	1300	7/18	19°36'	159°28'	78.5	07	13	78.3	74.6	1017	02	8,1	4	5	2	07	1	34.40
7	1600	7/18	19°15'	159°46'	78.4	07	12	78.4	75.0	1018	02	8,1	5	7	2	07	1	34.49
8	1900	7/18	18°54'	160°04'	78.7	10	14	79.7	74.8	1016	03	1,8	6	7	3	10	1	34.40
9	2200	7/18	18°34'	160°21'	79.0	11	12	79.8	75.4	1018	02	8	6	7	2	10	1	34.53
10	0100	7/19	18°15'	160°40'	79.7	11	12	80.2	74.5	1016	01	8	2	7	2	10	1	34.50
11	0400	7/19	18°00'	161°01'	79.5	10	10	79.6	75.0	1016	02	8	3	8	3	10	1	34.54
12	0700	7/19	18°13'	161°17'	79.6	07	16	79.8	75.3	1015	00	X	X	X	2	08	1	34.43
13	1000	7/19	18°31'	161°36'	79.5	08	17	79.0	75.2	1017	02	8	4	5	3	07	1	34.48
14	1300	7/19	18°46'	161°56'	79.2	08	17	78.8	74.0	1017	02	8	4	5	3	07	1	34.49
15	1600	7/19	19°03'	162°15'	79.5	08	14	79.1	74.0	1016	02	1,8	2	7	3	07	1	34.44
16	1900	7/19	19°19'	162°32'	79.5	10	17	80.3	74.4	1015	01	8	1	7	3	05	4	34.47
17	2200	7/19	19°39'	162°51'	79.9	09	17	80.9	74.7	1018	02	8	3	8	3	09	1	34.46
18	0100	7/20	20°00'	163°09'	80.0	09	15	80.1	74.8	1017	02	8	3	8	3	09	1	34.47
19	0400	7/20	20°22'	163°27'	80.0	09	14	79.2	75.1	1017	02	8	2	8	3	09	1	34.43
20	0700	7/20	20°40'	163°40'	80.0	09	19	80.0	75.0	1016	25	8	2	7	3	09	1	34.26
21	1000	7/20	21°01'	164°00'	78.8	09	12	79.1	73.8	1019	02	8	4	5	3	09	1	34.83
22	1300	7/20	21°21'	164°18'	78.8	10	16	78.8	74.4	1019	02	8	4	5	3	09	1	34.77
23	1600	7/20	21°41'	164°36'	78.5	09	14	77.8	73.5	1019	02	1,8	2	7	3	09	1	34.72
24	1900	7/20	22°00'	164°53'	79.0	08	16	79.4	74.6	1017	03	8,6	3	7	3	09	1	34.82
25	2200	7/20	22°18'	165°11'	79.4	08	10	78.2	73.8	1018	14	8,6	5	7	2	09	1	34.76
26	0100	7/21	22°39'	165°32'	79.7	09	13	79.5	74.6	1017	02	8,6	5	7	2	09	1	34.66
27	0400	7/21	23°00'	165°52'	79.9	09	12	79.6	74.0	1019	02	8	3	8	2	09	1	34.79
28	0700	7/21	23°20'	166°09'	79.5	09	15	79.5	73.5	1017	01	8	2	7	2	09	1	34.70
29	2200	7/22	24°03'	166°05'	79.4	06	10	78.3	72.6	1018	00	6,3	5	7	2	08	1	34.94
30	0100	7/23	24°11'	165°38'	79.3	09	11	78.3	73.5	1017	01	5,8	5	7	2	10	1	35.11
31	0400	7/23	24°19'	165°10'	79.3	07	11	79.1	72.5	1016	50	8,6	6	7	2	10	1	35.01
32	0700	7/23	24°25'	164°46'	78.7	09	10	77.5	72.5	1019	02	8,6	7	7	2	09	1	34.99
33	1000	7/23	24°37'	164°18'	78.7	07	09	75.7	70.8	1017	00	X	X	5	2	09	1	34.97
34	1300	7/23	24°47'	163°51'	78.3	07	08	77.6	72.0	1016	00	8	2	5	2	09	1	34.95
35	1600	7/23	24°59'	163°23'	78.6	08	08	77.0	70.5	1017	00	8	4	7	2	09	1	34.73
36	1900	7/23	25°07'	162°54'	78.0	08	09	80.0	72.0	1018	02	8	4	7	1	09	1	34.93
37	2200	7/23	25°16'	162°24'	79.8	07	02	79.4	71.8	1017	01	8	1	7	1	09	1	34.93
38	0100	7/24	25°23'	161°56'	83.7	00	00	80.6	71.5	1017	03	8	2	7	0	08	1	34.77
39	0400	7/24	25°31'	161°29'	81.4	07	02	77.9	71.6	1016	15	8	3	7	1	08	3	34.85
40	0930	7/24	25°55'	161°01'	78.1	09	08	78.2	73.7	1018	00	8	3	7	1	08	1	35.14

1/ X indicates that no observation was recorded.

Table 5.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 45 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T)	Ampt.		
41	1200	7/24	25°40'	160°45'	78.6	09	07	76.6	73.0	1017	01	8	2	7	1	09	3	35.16
42	1300	7/24	25°31'	160°40'	78.6	10	06	77.2	73.0	1017	02	8	2	7	1	09	3	35.18
43	1600	7/24	25°06'	160°22'	78.7	00	00	74.8	70.0	1017	15	8,6	7	6	1	10	1	34.89
44	1900	7/24	24°41'	160°05'	79.1	11	05	79.8	73.8	1018	01	8,6	2	7	1	11	1	34.87
45	2200	7/24	24°16'	159°47'	80.2	15	04	80.4	73.3	1018	02	8	2	7	1	11	1	35.03
46	0100	7/25	23°51'	159°30'	81.1	11	06	80.3	72.7	1018	02	8	2	7	1	11	1	35.00
47	0400	7/25	23°27'	159°13'	79.8	07	08	78.3	73.8	1017	02	8	2	7	1	09	1	34.91
48	0700	7/25	23°06'	158°57'	80.0	09	06	79.2	74.8	1018	03	8	4	7	1	09	1	34.37
49	1000	7/25	22°45'	158°41'	79.0	09	08	79.0	75.3	1018	15	8	4	7	1	09	1	34.87
50	1300	7/25	22°24'	158°21'	78.5	09	08	77.2	74.0	1017	15	8	6	7	1	09	1	34.85
51	1620	7/25	21°59'	157°59'	78.2	08	08	78.2	74.8	1017	15	1,6,8	6	7	1	07	1	34.76
52	1900	7/25	22°14'	157°35'	78.4	07	02	81.0	76.1	1018	01	6,8	4	7	1	07	1	34.75
53	2200	7/25	22°22'	157°22'	80.2	10	07	81.4	75.7	1017	03	1,2,5,8	5	7	1	04	1	34.81
54	0130	7/26	22°31'	157°03'	80.3	13	10	82.4	77.6	1016	15	8,2,5	4	7	1	04	1	34.89
55	0400	7/26	22°41'	156°38'	80.2	13	11	80.0	75.4	1017	02	8,1	4	7	1	05	1	34.74
56	0700	7/26	22°52'	156°13'	79.5	11	09	80.1	76.1	1017	02	8,1	4	7	1	06	1	34.74
57	1000	7/26	23°06'	155°47'	78.7	07	11	79.3	76.0	1017	03	8	5	7	2	06	1	34.87
58	1300	7/26	23°21'	155°22'	78.5	07	17	79.1	74.5	1017	15	8,3	5	7	3	06	1	34.83
59	1600	7/26	23°37'	154°58'	77.0	11	16	77.3	72.8	1017	15	8,4	6	7	3	07	1	34.81
60	1900	7/26	24°00'	154°41'	77.4	11	16	78.0	73.3	1019	03	8,5	6	7	3	08	1	34.98
61	2200	7/26	24°23'	154°24'	77.6	06	09	82.0	75.0	1019	02	8,2	5	7	2	07	1	34.99
62	0100	7/27	24°45'	154°05'	77.2	06	12	78.1	72.0	1018	02	8,2	4	7	3	07	1	35.03
63	0400	7/27	25°08'	153°46'	77.1	10	11	78.3	71.7	1018	03	4,8	6	7	2	07	1	35.08
64	0700	7/27	25°29'	153°27'	76.7	10	14	77.1	70.1	1020	00	X	X	5	2	08	1	34.36
65	1055	7/27	25°58'	152°59'	77.1	10	16	77.5	70.2	1019	00	X	X	6	3	08	1	34.76
66	1300	7/27	25°39'	152°57'	77.1	10	17	77.4	70.5	1019	01	8,6	5	7	3	09	1	35.08
67	1600	7/27	25°09'	152°55'	77.2	10	14	75.6	69.7	1019	01	1,8	3	7	3	09	1	35.08
68	1900	7/27	24°41'	152°54'	77.0	10	12	76.8	71.1	1020	15	8,1,4	6	7	2	10	1	35.09
69	2200	7/27	24°13'	152°55'	77.7	10	15	78.1	72.3	1020	01	8,1,2	5	7	2	10	1	35.02
70	0100	7/28	23°46'	152°54'	77.5	10	10	78.0	70.9	1018	01	8,1	2	7	2	10	1	34.99
71	0400	7/28	23°18'	152°53'	78.0	08	14	78.5	71.3	1018	02	8	2	7	3	09	1	34.90
72	0700	7/28	22°52'	152°49'	78.1	08	17	76.7	72.2	1019	00	X	X	5	3	09	1	34.87
73	1000	7/28	22°23'	152°49'	79.0	09	18	78.0	73.1	1018	00	8	6	6	3	09	1	34.79
74	1300	7/28	21°54'	152°50'	77.7	09	11	76.7	72.2	1017	02	8	6	6	3	09	1	34.74
75	1600	7/28	21°25'	152°50'	77.5	09	12	75.7	73.6	1017	25	0,8	7	7	3	09	1	34.76
76	1900	7/28	20°57'	152°50'	78.0	08	10	77.5	74.8	1017	15	8,6	6	7	2	09	1	34.80
77	2200	7/28	20°28'	152°50'	78.7	08	11	81.0	74.8	1016	01	8,6	4	7	2	09	1	34.82
78	0100	7/29	20°00'	152°52'	78.4	08	10	79.5	74.8	1015	50	8,6	6	7	2	08	1	34.77
79	0400	7/29	19°32'	152°54'	78.1	06	14	78.3	74.6	1015	01	8	2	7	3	08	1	34.78
80	0700	7/29	19°08'	152°55'	77.3	08	14	77.9	74.3	1016	02	8,6	2	5	3	08	1	34.79

Table 5.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 45 (con.)

Ser. No.	Time Date, 1959 (GCT)	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro meter (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (%)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
					Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
81	1000 7/29	18°39'	152°56'	77.8	08	14	78.5	74.9	1015	02	X	5	7	3	08	1	34.78
82	1300 7/29	18°10'	152°59'	77.8	09	15	77.6	73.5	1015	02	8	5	7	3	09	1	34.78
83	1600 7/29	17°38.5'	153°03.0'	77.8	07	14	78.5	74.6	1013	01	8	2	7	3	09	1	34.82
84	2000 7/29	16°59.0'	153°04.0'	78.5	09	12	79.9	74.8	1014	01	8,6	4	7	3	09	1	34.78
85	2200 7/29	16°57.0'	153°24.5'	78.6	09	12	85.0	78.0	1014	02	8,6	4	7	3	09	1	34.78
86	0100 7/30	16°53.0'	153°54.0'	78.7	09	09	83.0	75.8	1013	02	8	4	7	2	09	1	34.75
87	0400 7/30	16°50.0'	154°24.0'	78.7	09	13	82.4	75.3	1012	03	4,8	5	7	2	09	1	34.73
88	0700 7/30	16°48.5'	154°48.0'	78.4	07	12	78.7	74.0	1014	02	8,6	2	5	2	09	1	34.67
89	1000 7/30	16°50.0'	155°17.0'	78.5	07	11	78.8	73.9	1014	01	8	1	5	2	09	1	34.69
90	1400 7/30	16°52.0'	155°55.0'	78.5	06	11	78.5	74.5	1013	02	8	2	7	2	08	1	34.67
91	1600 7/30	17°09.5'	156°04.0'	78.5	06	09	77.3	74.5	1013	02	8	3	7	2	07	1	34.66
92	1900 7/30	17°37.0'	156°19.0'	78.4	09	14	79.6	74.6	1014	01	8	2	7	2	08	1	34.68
93	2200 7/30	18°06.0'	156°33.0'	79.1	09	12	79.1	74.8	1014	03	8,4	5	7	2	08	1	34.71
94	0100 7/31	18°33.0'	156°47.0'	79.6	09	13	79.7	74.0	1013	02	8,4,1	5	7	2	09	1	35.09
95	0400 7/31	19°00.5'	157°01.0'	79.6	09	05	78.5	74.0	1014	15	8,1	6	7	2	09	1	34.77
96	0700 7/31	19°25.5'	157°10.0'	79.2	05	15	80.6	76.0	1014	01	8	2	7	1	08	1	34.65
97	1000 7/31	19°52.0'	157°20.0'	78.6	06	16	79.9	75.3	1014	00	X	X	7	2	08	1	34.67
98	1300 7/31	20°18.0'	157°29.0'	80.5	09	17	79.5	75.0	1014	00	X	2	7	2	08	1	34.60
99	0330 8/3	21°15.0'	158°10.0'	80.3	07	17	79.9	74.0	1015	03	8,6	6	7	3	08	1	
100	2255 8/3	21°07.0'	158°31.0'	80.3	08	17	82.2	74.1	1014	03	8,6	6	7	3	08	1	
101	0255 8/4	21°20.0'	158°14.0'	80.4	06	16	81.8	72.3	1013	01	8,6	2	7	2	07	1	
102	2215 8/4	21°27.5'	158°19.5'	80.8	05	05	86.9	71.9	1014	01	8,6	2	8	2	05	1	
103	1930 8/9	21°13.5'	158°02.0'	79.0	05	09	81.0	75.7	1017	15	6,8	6	7	1	05	1	
104	0325 8/10	21°18.5'	158°14.0'	80.4	06	15	81.8	75.4	1015	01	6,8	4	7	1	08	1	
105	0335 8/15	21°09.5'	157°55.0'	78.9	06	20	79.1	72.6	1015	00	6,8	3	7	3	07	2	
106	2335 8/17	21°07.0'	157°47.5'	80.2	27	07	82.9	74.2	1012	00	6,8	4	8	1	22	1	
107	0210 8/18	21°00.0'	157°45.0'	79.0	04	12	81.1	75.0	1012	01	6,8	3	8	3	05	2	
108	2115 8/19	21°02.5'	157°58.5'	79.3	08	15	80.2	75.5	1014	02	8	1	8	2	12	1	
109	0240 8/20	21°17.5'	158°12.5'	81.7	25	07	82.0	76.0	1015	03	6,8	4	8	1	15	1	
110	0230 8/24	21°19.0'	158°13.0'	80.4	01	06	81.9	75.5	1012	00	6,8	5	7	2	12	1	
111	0145 8/28	20°41.5'	157°01.0'	81.0	28	06	81.1	74.0	1012	01	2,6,8	4	8	1	06	2	
112	0130 8/29	20°57.0'	158°01.0'	80.9	06	18	79.5	72.5	1013	02	2,6,8	3	8	3	10	3	

Table 6.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 46  
(Recording and coding of data follows U.S. Navy Hydrographic Office, 1956.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
1	0115	9/26	21°28'	158°24'	81.0	19	05	82.1	72.9	1015	02	1,6,8	6	8	2	18	2	
	1800	9/29	21°01'	157°43'	80.8												34.78	
2	2100	9/29	20°36'	157°32'	81.4	13	10	81.9	75.9	1016	02	4,8	6	8	2	13	2	34.80
3	0000	9/30	20°12'	157°20'	80.6	19	15	80.7	75.6	1014	02	4,8	5	8	2	19	2	34.78
4	0300	9/30	19°48'	157°10'	80.2	08	08	79.7	74.5	1014	15	8	8	7	2	04	2	34.85
5	0000	10/1	19°26'	157°04'	80.2	18	07	80.9	74.4	1013	01	6,8	6	7	3	12	3	34.81
6	0300	10/1	19°04'	156°46'	79.6	14	12	80.6	74.5	1012	02	6,8	6	7	3	13	3	34.83
7	0600	10/1	18°44'	156°29'	79.1	09	16	80.7	74.0	1014	02		8	7	3	13	3	34.86
8	0900	10/1	18°24'	156°12'	78.5	10	18	80.0	73.3	1014	01		5	7	3	13	3	34.77
9	1200	10/1	18°04'	155°55'	79.7	07	14	79.5	74.3	1012	01		7	7	3	06	3	34.44
10	1500	10/1	17°44'	155°38'	80.0	07	13	79.0	73.1	1012	02		3	7	3	10	3	34.40
11	1800	10/1	17°33'	155°18'	80.0	06	13	80.8	74.5	1014	02	4,6,8	3	8	3	08	3	34.37
12	2100	10/1	17°35'	155°04'	80.0	07	13	79.8	74.0	1014	01	4,8	2	8	3	08	3	34.42
13	0000	10/2	17°29'	154°43'	80.0	04	12	79.7	74.1	1012	02	4,8	4	8	3	06	3	34.45
14	0300	10/2	17°21'	154°21'	80.2	06	13	79.5	73.9	1012	02	4,8	4	8	3	06	3	34.51
15	0600	10/2	17°13'	154°00'	80.0	06	10	79.8	74.4	1013	01		2	7	2	06	2	34.47
16	0900	10/2	17°10'	153°45'	80.0	06	11	79.3	74.6	1014	02		3	7	2	06	2	34.34
17	1200	10/2	17°07'	153°28'	80.3	06	07	79.2	73.0	1012	20		7	7	2	06	2	34.38
18	1500	10/2	17°04'	153°11'	80.6	08	11	77.8	73.0	1012	00		6	7	2	09	2	34.35
19	1645	10/2	16°57'	153°11'	80.5	07	12	80.5	73.5	1013	00	4,8	6	8	1	04	2	
20	2210	10/2	17°00'	153°15'	80.5	09	10	80.5	74.2	1013	02	4	3	8	1	09	2	34.34
21	0035	10/3	17°06'	153°16'	80.7	06	10	80.5	74.8	1012	02	8	4	8	2	08	2	
22	0300	10/3	17°26'	153°16'	80.3	06	13	81.2	73.5	1012	02	8	4	8	2	08	2	34.40
23	0600	10/3	17°54'	153°17'	79.5	09	10	78.1	72.9	1013	02	8	2	6	2	08	2	34.48
24	1200	10/3	18°35'	153°11'	78.9	05	05	76.7	73.3	1014	20		7	6	1	00	2	34.70
25	1500	10/3	19°02'	153°10'	78.7	08	06	75.5	71.0	1013	01		4	7	1	04	2	34.92
26	1800	10/3	19°30'	153°08'	78.1	08	09	77.7	72.0	1014	18	4,6	7	6	1	04	1	34.99
27	2100	10/3	19°57'	153°07'	78.4	10	09	77.9	72.7	1015	01	4,8	3	9	1	04	2	35.12
28	0000	10/4	20°24'	153°06'	78.9	08	06	78.5	72.6	1013	02	8	3	9	1	03	2	35.15
29	0300	10/4	20°51'	153°04'	78.8	07	07	78.4	71.3	1013	03	8	4	8	1	03	2	35.04
30	0600	10/4	21°18'	153°02'	78.2	08	06	77.0	69.8	1015	02		4	9	1	03	2	35.17
31	0900	10/4	21°36'	152°57'	78.4	09	09	77.2	70.8	1016	02		3	6	1	03	2	35.11
32	1200	10/4	22°06'	152°55'	78.0	08	11	76.4	72.0	1015	02		3	6	1	03	2	35.17
33	1500	10/4	22°34'	152°54'	77.9	09	08	77.0	71.5	1014	01	8	2	8	1	03	2	35.15
34	1740	10/4	22°50'	153°00'	77.7	00	02	76.0	71.9	1015	02	8	3	8	1	03	2	35.04
35	2200	10/4	22°50'	153°00'	77.2	10	10	78.4	72.5	1015	02	8	3	8	1	09	2	
36	0140	10/5	22°53'	152°53'	78.0	09	12	77.6	73.0	1013	03	4,8	7	8	2	09	2	
37	0600	10/5	22°48'	153°42'	78.3	13	12	78.1	73.9	1016	03		6	6	2	09	2	35.04
38	0900	10/5	22°36'	153°54'	78.6	12	13	78.0	72.0	1016	02		6	6	2	09	2	35.03
39	1155	10/5	22°15'	154°15'	78.4	13	13	78.3	73.8	1015	02		4	6	2	10	2	35.07
40	1500	10/5	21°54'	154°36'	78.1	13	13	77.7	73.0	1015	01		2	8	2	10	2	35.07

Table 6.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 46 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. °F.	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
41	1800	10/5	21°40'	154°56'	78.4	11	11	79.8	74.8	1016	03	6,8	6	7	2	13	2	35.07
42	2100	10/5	21°25'	155°24'	79.0	13	05	78.2	74.0	1016	18	6,8	6	6	2	13	2	35.06
43	0000	10/6	21°14'	155°50'	79.9	12	09	79.6	75.8	1014	01	8	2	8	1	13	2	34.97
44	2100	10/8	20°54'	157°26'	80.1	12	12	80.1	73.5	1015	02	8	2	8	2	11	3	34.89
45	2209	10/8	20°48.5'	157°33.0'	81.6													0.43
46	2215	10/8	20°49'	157°32'	81.8													
47	2225	10/8	20°50'	157°32'	82.0													
48	2235	10/8	20°50'	157°31'	81.9													
49	2252	10/8	20°51'	157°30'	81.4													
50	2302	10/8	20°52'	157°30'	81.3													
51	2311	10/8	20°52'	157°29'	81.0													
52	2322	10/8	20°53'	157°28'	80.5													
53	2332	10/8	20°54'	157°28'	80.5													0.46
54	2342	10/8	20°54'	157°27'	79.9													
55	2352	10/8	20°55'	157°27'	79.8													
56	0002	10/9	20°55'	157°27'	79.7													
57	0012	10/9	20°56'	157°26'	80.1													
58	0022	10/9	20°56'	157°26'	80.2													
59	0032	10/9	20°57'	157°25'	80.1													
60	0042	10/9	20°57'	157°25'	80.1													0.34
61	0052	10/9	20°58'	157°24'	80.0													
62	0102	10/9	20°59'	157°24'	80.1	09	17	80.0	73.9	1012	02	8	1	8	3	09	3	34.88
63	0600	10/9	20°21'	157°54'	80.8	13	10	81.1	74.1	1014	02		6	6	3	13	3	34.90
64	0900	10/9	20°04'	158°04'	80.1	13	09	80.0	73.2	1016	01		2	6	2	08	3	34.77
65	1200	10/9	19°41'	158°19'	80.0	16	12	76.5	70.8	1015	03		8	6	2	08	4	34.70
66	1500	10/9	19°18'	158°34'	80.0	08	06	77.5	73.0	1014	02		5	7	2	09	4	34.84
67	1800	10/9	18°59'	158°51'	80.0	09	12	80.0	74.1	1015	03	6,8	2	7	2	09	4	34.85
68	2205	10/9	18°41'	159°14'	80.3	11	12	81.5	74.5	1015	02		4	7	2	09	4	34.86
69	0000	10/10	18°28'	159°28'	80.5	11	10	81.1	73.7	1014	02	8	2	8	3	12	4	34.87
70	0300	10/10	18°12'	159°44'	80.5	09	13	80.7	73.7	1014	02	8	2	8	3	12	4	34.81
71	0600	10/10	17°56'	160°06'	79.6	08	15	80.0	74.2	1016	02	8	6	7	3	09	4	34.60
72	0900	10/10	17°29'	160°06'	80.0	12	22	78.7	73.0	1016	20	8	8	5	4	08	5	34.87
73	1200	10/10	17°00'	160°08'	80.0	12	17	80.3	74.7	1015	02	8	8	5	3	09	5	34.79
74	1500	10/10	16°36'	160°08'	80.0	08	16	79.9	75.0	1014	01		3	6	3	09	5	34.56
75	1720	10/10	16°26'	160°14'	80.3			80.7	76.1	1017	02	8	7	8	3			34.56
76	2150	10/10	16°24'	160°15'	80.4	08	12	81.3	76.0	1015	02	8	7	8	3	08	4	34.44
77	0015	10/11	16°24'	160°14'	80.8	06	16	80.2	75.7	1013	02	8	6	8	3	08	4	
78	0300	10/11	16°01'	160°14'	80.7	08	16	80.9	76.1	1012	02	8	7	8	3	10	4	34.36
79	0600	10/11	15°33'	160°15'	80.5	08	16	81.0	76.7	1014	20	8	8	6	2	06	3	34.51
80	0900	10/11	15°14'	160°12'	81.0	07	14	81.0	76.5	1015	01	8	4	6	2	07	3	34.46

Table 6.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 46 (con.)

Ser. No.	Time Date, 1959 (GCT)	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Baro- meter (mb.)	Wear- ther	Clouds		Visi- bility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
					Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
81	1200	10/11	15°32'	80.7	07	12	80.2	77.1	1014	02	4,8	5	6	2	07	3	34.40
82	1500	10/11	15°50'	80.7	07	15	79.8	75.5	1014	02	6,8	5	7	2	07	3	34.51
83	1800	10/11	16°06'	80.0	05	14	79.5	76.0	1015	02	6,8	5	7	2	07	3	34.61
84	2100	10/11	16°20'	80.5	07	15	80.0	75.2	1015	02	4,6,8	5	7	2	07	3	34.79
85	0000	10/12	16°35'	81.0	07	17	80.4	75.4	1013	02	4,6,8	5	7	2	07	3	34.62
86	0300	10/12	16°52'	80.8	09	13	81.0	75.0	1012	01	8	3	8	2	06	3	34.64
87	0600	10/12	17°06'	80.4	08	12	80.0	74.9	1014	02	6,8	3	8	2	06	3	34.67
88	0900	10/12	17°19'	80.6	06	11	80.0	75.4	1016	02	8	3	7	2	06	4	34.66
89	1200	10/12	17°42'	80.5	05	10	79.4	73.9	1015	01	8	3	7	2	07	4	34.59
90	1500	10/12	18°05'	81.6	06	10	79.4	72.5	1014	02		2	7	2	07	2	34.31
91	1800	10/12	18°28'	81.2	09	14	80.0	73.7	1015	03	4,8	4	7	2	07	2	34.30
92	2100	10/12	18°53'	81.4	08	12	80.4	74.0	1013	02	4,8	4	7	2	08	2	34.64
93	0000	10/13	18°47'	80.6	08	09	81.6	74.0	1015	02	4,6,8	4	7	2	08	2	34.56
94	0300	10/13	18°27'	81.5	08	12	81.5	74.3	1013	02	4,6,8	3	7	2	08	2	34.24
95	0600	10/13	18°08'	81.3	06	13	80.9	74.8	1015	02	4,8	3	7	2	09	2	34.31
96	0900	10/13	17°54'	81.6	07	16	80.8	75.3	1016	03	4,8	5	7	2	09	2	34.32
97	1200	10/13	17°34'	81.8	08	14	80.5	75.2	1014	02	8	4	7	2	08	2	34.33
98	1500	10/13	17°14'	81.4	08	15	80.2	74.5	1013	02		4	7	2	08	2	34.36
99	1800	10/13	16°53'	80.8	10	12	80.0	74.8	1014	18	6,8	6	6	3	08	3	34.45
100	2100	10/13	16°34'	80.0	09	14	82.2	74.8	1015	01	6,8	5	7	2	10	3	34.67
101	0000	10/14	16°58'	81.6	09	11	81.0	74.9	1013	02	4,8	4	7	2	09	3	34.46
102	0300	10/14	17°23'	81.5	08	10	79.7	75.5	1014	21	8	7	7	2	08	3	34.41
103	0600	10/14	17°47'	81.3	10	15	80.8	76.1	1014	03	6,8	6	6	2	08	3	34.68
104	0900	10/14	18°16'	81.3	05	14	80.5	76.0	1015	01	6,8	4	6	2	07	5	34.58
105	1200	10/14	18°45'	81.7	04	10	80.1	74.3	1014	02	8	3	7	2	04	5	34.58
106	1500	10/14	19°13'	81.5	06	15	79.7	75.2	1013	01	8	2	7	2	04	5	34.66
107	1800	10/14	19°37'	81.1	04	17	80.0	75.1	1014	03	4,6,8	4	7	2	04	5	34.97
108	2100	10/14	19°59'	81.0	07	12	81.0	74.8	1015	02	6,8	4	7	2	05	4	35.09
109	0000	10/15	20°22'	81.3	06	13	81.4	75.0	1014	02	8	2	8	3	06	4	35.10
110	0300	10/15	20°45'	81.2	06	12	80.8	73.8	1012	02	6,8	2	8	3	06	4	35.10
111	0600	10/15	20°42'	81.5	07	13	78.7	73.4	1014	03	6,8	5	8	2	06	4	34.74
112	0900	10/15	20°38'	81.8	07	14	80.9	74.7	1015	03	4,8	6	8	3	07	3	34.60
113	1200	10/15	20°33'	81.4	07	14	80.3	74.5	1014	03	6,8	6	7	3	07	3	34.77
114	1500	10/15	20°27'	81.0	07	11	80.0	74.5	1013	02	4,8	5	7	2	07	3	34.68
115	1800	10/15	20°21'	81.3	06	12	81.5	74.0	1014	01	4,6,8	3	7	2	07	3	34.74
116	2100	10/15	20°13'	81.4	04	09	81.1	73.8	1015	02	4,8	2	8	2	09	3	34.98
117	0000	10/16	20°28'	81.4	04	12	81.6	75.0	1013	03	4,8	7	8	2	05	3	34.84
118	0300	10/16	20°49'	81.5	07	10	81.4	75.9	1013	02	4,8	7	8	2	06	3	34.77
119	0600	10/16	21°10'	81.2	09	12	80.5	75.2	1014	02	4,8	5	6	2	06	3	34.78
120	0900	10/16	21°24'	81.3	08	12	80.2	74.8	1016	01	4,8	4	6	2	06	3	34.82

Table 6.--Summary of observations at bathythermograph lowerings, Charles H. Gilbert cruise 46 (con.)

Ser. No.	Time (GCT)	Date, 1959	Latitude N.	Longitude W.	Bkt. temp. (°F.)	Wind		Air temp.		Barometer (mb.)	Weather	Clouds		Visibility	Swell		Surf. sal. (‰)	Surf. PO <sub>4</sub> -P, (ug. at./l.)
						Dir. (°T.)	Force (kn.)	Dry bulb (°F.)	Wet bulb (°F.)			Type	Cover		Dir. (°T.)	Amt.		
121	1200	10/16	21°46'	162°42'	81.1	07	14	80.3	74.0	1015	01	8	2	7	2	06	3	34.74
122	1500	10/16	22°08'	162°26'	80.8	08	13	79.5	73.5	1015	02	8	2	7	2	06	3	34.73
123	1800	10/16	22°30'	162°12'	79.7	08	12	80.0	74.8	1016	02	6,8	2	7	2	06	3	35.17
124	2100	10/16	22°54'	161°58'	79.9	10	16	80.3	73.5	1017	02	4,8	2	7	3	07	3	35.01
125	0300	10/17	22°31'	161°45'	79.8	08	12	80.4	73.2	1015	02	8	3	7	3	08	3	34.97
126	0600	10/17	22°04'	161°35'	80.5	07	14	79.8	73.3	1016	02	8	3	7	3	10	4	34.86
127	0900	10/17	21°35'	161°25'	81.0	09	15	79.9	73.7	1016	03	8	6	7	4	11	4	34.72
128	1100	10/17	21°17'	161°18'	80.6	09	16	79.7	71.8	1015	01	8	3	7	3	10	4	34.71
129	1500	10/17	21°32'	160°45'	80.5	10	17	79.2	71.5	1015	02	8	2	7	3	10	4	34.80
130	1800	10/17	21°42'	160°22'	80.5	08	18	79.5	72.8	1016	02	8	3	8	3	10	4	34.70
131	2100	10/17	21°58'	160°02'	80.8	11	11	79.6	74.0	1017	02	8	1	8	2	09	1	34.74
132	0300	10/18	22°28'	159°40'	80.1	09	18	79.8	74.5	1016	02	8	1	7	3	09	4	34.88
133	0600	10/18	22°51'	159°32'	79.9	10	14	80.2	74.2	1018	03	6,8	4	7	2	08	4	34.95
134	1200	10/18	22°27'	159°06'	79.4	08	12	78.3	72.1	1018	02	8	3	7	3	11	4	34.96
135	1500	10/18	22°06'	158°48'	79.6	10	17	77.7	71.5	1017	02	8	2	7	3	11	4	34.98
136	1800	10/18	21°46'	158°30'	79.0	08	16	78.3	70.6	1018	03	8	4	7	3	11	4	35.00

Table 7.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 50<sup>1/</sup>

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
1/11	18.1°	155.2°	0000	99	15	04	02	1	1011.5	7	2.0	79.4	73.6	78.1	3	1	4	7	8	0	15	4	3
1/11	17.4°	154.6°	0600	99	11	07	02	0	1012.9	2	0.9	76.7	73.5	76.9	2	2	4	X	X	X	15	4	3
1/11	16.9°	154.1°	1200	99	08	10	02	0	1011.9	7	1.5	76.8	73.2	77.8	1	1	X	X	X	X	15	4	4
1/11	16.1°	153.5°	1800	99	11	12	15	2	1013.2	2	0.6	78.0	73.7	77.3	7	2	4	7	8	0	11	4	4
1/12	15.4°	152.9°	0000	99	08	14	03	2	1009.5	6	2.3	78.0	73.9	77.0	7	6	8	6	3	X	11	4	4
1/12	14.7°	152.4°	0600	99	08	14	02	2	1011.5	2	1.0	77.3	74.0	77.0	7	1	X	X	X	X	11	4	4
1/12	14.0°	151.9°	1200	99	08	14	02	0	1010.2	8	1.5	78.0	74.2	77.9	1	1	X	X	X	X	11	4	4
1/12	13.5°	151.3°	1800	99	09	18	02	2	1009.8	2	1.5	79.0	74.5	78.2	5	4	4	6	6	0	11	4	4
1/13	12.9°	150.8°	0000	99	11	21	02	1	1006.4	7	2.7	79.2	74.8	78.6	3	3	4	6	6	0	11	4	5
1/13	12.7°	150.3°	0600	99	12	16	03	1	1008.5	2	1.9	79.4	74.8	78.9	4	X	X	X	X	X	11	4	5
1/13	12.7°	149.9°	1200	99	12	20	02	2	1008.1	8	0.8	79.3	72.9	78.1	6	X	X	X	X	X	11	4	5
1/13	12.8°	149.6°	1800	99	12	19	02	0	1010.2	2	0.5	80.5	74.7	78.2	2	2	4	6	0	0	11	4	5
1/14	13.5°	149.6°	0600	99	11	14	02	0	1010.8	2	2.6	78.5	73.5	78.1	2	X	X	X	X	X	11	4	5
1/14	14.5°	149.6°	1200	99	10	13	02	0	1009.8	7	0.2	78.0	74.4	78.0	2	X	X	X	X	X	11	4	5
1/14	15.1°	149.6°	1800	98	85	13	14	2	1013.9	2	3.2	78.2	75.0	77.7	8	8	8	5	X	X	90	4	5
1/15	15.7°	149.3°	0600	99	10	14	02	2	1013.2	2	1.6	78.1	75.5	77.8	7	7	X	X	X	X	90	4	5
1/15	16.5°	149.1°	1200	99	13	14	02	2	1011.5	8	1.3	77.7	75.0	77.3	4	X	X	X	X	X	10	3	2
1/16	17.3°	148.6°	0600	99	21	10	80	2	1011.5	2	1.7	78.1	75.1	77.5	8	X	X	X	X	X	10	3	2
1/16	17.1°	148.2°	1200	99	03	14	02	2	1010.2	7	1.5	75.0	71.5	77.0	5	X	X	X	X	X	08	3	2
1/17	17.3°	147.2°	0600	99	13	14	01	1	1009.1	2	1.9	76.4	72.1	76.5	2	2	1	0	0	0	31	3	4

1/ All columns in USWB 1210-F are not included here. Those deleted are:

Column	2	Day of week
"	3	Octant
"	13	Barometer as read
"	14	Barometer as corrected
"	17	Air temperature, °F.
"	23	Course of ship
"	24	Speed of ship
"	31	Diff. sea-air, °F.
"	32	Dew point, °F.



Table 7.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 50 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves			
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
1/17	18.1°	147.3°	1200	99	14	17	02	0	1007.8	7	2.0	76.2	72.0	77.2	2	X	X	X	X	X	X	12	2	4
1/17	18.9°	147.5°	1800	99	15	20	02	1	1010.8	2	0.9	76.8	70.0	77.1	7	6	8	6	4	0	15	4	4	
1/18	19.6°	148.2°	0000	99	15	23	02	2	1001.8	6	2.0	77.2	71.1	76.5	5	1	4	6	4	0	15	3	6	
1/18	20.3°	148.9°	0600	99	16	23	02	1	1009.5	0	1.2	76.9	72.0	76.1	4	X	X	X	X	X	15	3	6	
1/18	20.9°	149.6°	1200	99	16	28	02	1	1008.8	7	0.8	76.4	72.5	75.4	4	X	X	X	X	X	15	3	6	
1/18	21.8°	150.1°	1800	99	16	30	14	2	1007.8	5	0.3	77.9	72.9	74.4	6	6	8	6	4	0	15	3	6	
1/19	21.4°	149.6°	0600	98	16	24	02	2	1012.5	2	2.5	76.9	73.7	76.0	8	X	X	X	X	X	15	3	7	
1/19	20.4°	149.2°	1800	99	16	24	02	2	1014.6	0	0.2	76.2	73.2	76.0	7	4	8	8	7	X	15	3	4	
1/20	22.0°	150.1°	0000	97	11	18	63	2	1013.2	7	2.2	75.9	74.0	76.0	8	7	6	7	X	X	25	5	6	
1/20	21.8°	148.9°	0600	98	15	18	60	2	1015.6	2	0.8	75.4	72.6	74.8	8	X	X	X	X	X	15	3	5	
1/20	21.8°	148.5°	1200	99	16	10	02	2	1015.9	6	0.7	74.7	71.7	74.4	5	X	X	X	X	X	15	3	5	
1/20	21.2°	147.8°	1800	99	05	14	14	6	1017.6	1	0.9	72.6	67.9	74.3	7	7	8	6	4	X	05	2	3	
1/21	21.3°	148.0°	0600	99	14	10	03	1	1015.6	2	1.2	74.9	71.1	74.7	6	X	X	X	5	X	14	3	3	
1/21	22.2°	148.0°	1200	99	14	10	02	0	1014.2	7	0.4	74.0	70.4	74.5	4	4	2	6	0	0	09	3	3	
1/21	23.0°	148.0°	1800	99	19	14	14	2	1014.9	2	1.5	74.9	70.2	73.3	7	4	8	5	5	0	15	3	3	
1/22	23.2°	148.4°	0600	99	16	08	02	2	1014.6	2	1.1	72.7	70.1	73.0	7	X	8	6	X	X	09	3	3	
1/22	23.2°	149.1°	1200	99	16	07	14	8	1013.9	7	1.0	71.7	68.2	73.5	8	X	8	6	X	X	26	4	4	
1/23	23.3°	149.5°	0600	98	26	12	14	8	1018.0	2	2.1	72.1	67.4	74.0	8	X	8	5	X	X	32	4	3	
1/23	22.6°	150.1°	1200	99	33	14	02	0	1018.0	8	0.3	73.0	70.0	74.6	3	3	2	5	0	0	24	3	2	
1/23	21.6°	150.4°	1800	99	03	13	02	0	1020.0	2	1.3	73.9	67.7	75.1	2	2	2	5	0	0	34	3	4	
1/24	20.9°	150.9°	0000	99	04	18	02	0	1018.6	7	1.9	74.6	67.9	74.9	3	3	2	5	0	0	34	4	5	
1/24	20.0°	151.5°	0600	99	04	26	02	0	1021.3	2	1.9	73.9	67.9	76.0	2	2	2	5	0	0	34	4	5	
1/24	19.3°	150.0°	1200	98	06	22	03	1	1020.7	7	1.2	74.5	69.5	76.3	7	7	8	6	0	0	05	4	5	
1/24	18.4°	152.6°	1800	96	05	22	80	2	1021.7	3	1.6	74.8	70.8	76.7	8	8	6	5	X	X	05	3	4	
1/25	19.1°	153.1°	0000	98	08	22	02	1	1019.6	7	1.7	77.0	72.0	76.9	7	7	8	6	0	0	05	3	4	
1/25	19.9°	153.8°	0600	99	07	20	15	2	1021.0	2	1.5	75.0	70.0	76.3	6	6	8	6	0	0	06	3	4	
1/25	20.5°	154.2°	1200	97	09	18	02	2	1021.0	6	0.6	74.1	70.0	75.3	6	5	8	6	X	0	07	3	4	
1/25	21.3°	154.8°	1800	99	09	17	02	1	1022.0	2	1.5	76.0	71.0	74.1	2	2	8	6	0	0	07	3	4	
1/26	22.2°	155.1°	0000	99	10	17	16	2	1020.0	7	2.7	74.2	70.4	74.1	7	7	8	6	0	0	10	3	3	
1/26	22.9°	154.5°	0600	98	11	12	14	6	1022.0	2	1.2	73.5	70.4	73.8	7	7	8	6	X	X	09	3	3	
1/26	22.9°	154.2°	1200	99	11	14	01	1	1021.7	7	0.9	73.1	70.0	73.0	3	3	8	6	0	0	09	3	3	
1/26	22.8°	153.0°	1800	98	11	16	15	1	1023.0	2	1.9	71.2	67.5	73.0	4	4	8	6	0	0	09	3	3	
1/27	22.0°	153.2°	0600	99	11	15	02	0	1019.6	2	0.7	73.2	68.4	74.0	2	X	2	X	X	X	12	3	5	
1/27	21.4°	153.6°	1200	99	10	19	02	1	1018.0	7	1.5	74.9	68.7	74.9	4	3	8	6	6	0	12	3	4	
1/27	20.8°	154.4°	1800	99	13	17	02	0	1018.6	2	1.8	76.5	69.4	74.1	2	1	2	6	4	0	12	4	6	

Table 7.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 50 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amnt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
1/28	20.1°	154.9°	0000	99	13	14	03	1	1014.9	7	3.0	76.8	70.1	76.1	4	4	8	6	4	0	12	4	6
1/29	18.7°	155.7°	0000	99	07	18	02	0	1015.2	7	3.1	77.0	71.5	77.5	2	2	2	6	0	0	12	4	5
1/29	18.1°	156.6°	0600	99	10	18	02	0	1016.9	2	1.1	76.7	71.6	77.3	1	2	2	6	0	0	10	4	5
1/29	17.5°	155.2°	1200	99	09	19	02	0	1015.6	7	0.7	76.7	71.0	77.5	3	3	2	6	X	X	09	4	3
1/29	16.9°	158.0°	1800	99	08	21	02	1	1016.6	2	1.2	77.2	72.0	78.0	6	6	2	6	0	0	08	4	4
1/30	17.5°	158.7°	0000	99	09	18	02	1	1013.9	7	2.6	77.2	71.3	77.6	4	4	2	6	0	0	08	4	4
1/30	18.2°	159.5°	0600	99	08	14	02	1	1016.6	2	2.0	76.9	71.6	77.4	3	3	2	6	0	0	08	4	4
1/30	18.6°	160.0°	1200	99	06	10	02	0	1016.0	7	1.0	75.0	70.5	75.6	2	2	2	6	0	0	11	4	4
1/30	19.3°	160.8°	1800	99	05	06	02	0	1017.6	2	1.6	74.9	69.5	75.5	3	3	8	6	6	0	11	4	3
1/31	19.9°	161.7°	0000	99	03	06	02	0	1015.6	7	2.7	76.5	69.4	77.4	1	1	1	5	0	0	11	4	4
1/31	20.5°	162.3°	0600	99	01	12	02	0	1017.6	2	2.0	76.7	69.0	76.1	3	3	8	5	0	0	11	4	3
1/31	21.1°	162.4°	1200	99	03	22	03	1	1018.0	4	0.0	73.0	68.8	75.4	6	6	X	X	X	X	11	4	3
2/1	22.1°	162.7°	0000	99	05	23	02	2	1019.6	7	2.1	70.0	62.5	75.0	7	7	8	6	X	X	03	3	6
2/1	22.6°	162.7°	0600	99	06	27	02	2	1023.0	2	2.0	69.0	60.8	73.8	7	X	X	X	X	X	03	3	6
2/1	21.8°	163.5°	1200	98	07	26	01	1	1022.7	7	1.5	69.1	64.2	74.9	2	X	X	X	X	X	07	3	5
2/1	21.2°	164.0°	1800	99	06	25	15	1	1022.0	3	0.5	68.5	64.9	74.5	5	5	8	6	0	0	07	3	6
2/2	20.6°	164.7°	0000	99	08	20	02	0	1020.3	7	2.3	72.1	66.8	75.4	4	4	8	6	0	0	07	3	6
2/2	20.0°	165.2°	0600	99	09	23	02	1	1019.3	2	0.5	73.1	67.9	75.5	3	3	8	6	0	0	08	3	5
2/2	19.0°	165.3°	1200	99	08	16	02	0	1019.0	7	1.8	74.5	68.0	75.0	3	X	X	X	X	X	08	3	5
2/3	18.2°	166.0°	0600	99	07	16	02	1	1016.9	2	0.9	75.2	66.0	74.9	7	7	8	6	X	X	08	3	5
2/3	17.4°	166.2°	1200	XX	09	23	02	2	1015.9	7	1.6	75.4	66.9	77.3	8	X	X	X	X	X	08	3	6
2/3	16.6°	166.3°	1800	98	07	20	02	2	1015.6	3	0.5	76.5	66.8	77.6	7	7	8	6	0	0	08	3	6
2/4	16.4°	167.2°	0000	99	08	22	01	1	1014.6	7	1.9	77.4	67.5	77.6	2	2	8	6	0	0	07	3	6
2/4	16.4°	168.2°	0600	99	08	21	02	1	1013.5	3	0.4	76.8	69.0	77.5	3	3	8	6	0	0	07	3	6
2/4	16.4°	169.2°	1200	99	08	22	02	0	1013.9	8	1.4	76.0	69.0	76.2	2	X	X	X	X	X	07	3	6
2/5	16.4°	170.7°	0000	99	07	23	02	0	1012.5	8	1.2	76.1	69.3	76.8	4	4	8	5	0	0	06	4	7
2/5	16.0°	170.0°	0600	99	07	16	02	1	1010.8	4	0.0	75.0	69.0	76.6	4	4	8	6	0	0	06	4	6
2/5	15.5°	169.3°	1200	99	08	16	02	0	1010.8	8	1.0	76.0	69.6	77.1	3	X	X	X	X	X	06	4	6
2/5	15.0°	168.7°	1800	99	09	14	14	1	1010.2	3	0.8	76.5	69.2	77.4	3	2	8	5	4	0	08	3	5
2/6	14.7°	168.0°	0000	99	08	19	02	1	1009.5	7	2.0	76.5	71.2	77.9	4	4	8	6	0	0	08	3	6
2/6	14.3°	167.3°	0600	99	07	20	02	1	1008.8	2	1.0	77.0	71.9	78.0	5	5	8	6	0	0	08	3	6
2/6	13.9°	166.5°	1200	98	07	20	14	2	1009.5	7	1.0	76.0	72.8	78.0	7	X	X	X	X	X	08	3	6
2/6	13.6°	165.8°	1800	99	06	20	15	2	1009.5	3	1.8	77.5	72.8	78.2	7	6	8	6	4	0	08	3	6
2/7	13.1°	165.3°	0000	98	06	20	02	2	1007.8	7	2.8	78.6	74.0	78.6	8	8	8	6	0	0	08	3	6
2/7	13.6°	164.9°	0600	98	05	22	14	8	1008.5	2	0.9	77.1	73.8	78.5	8	X	X	X	X	X	06	3	6

Table 7.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 50 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
2/7	14.5°	164.3°	1800	98	06	21	02	2	1008.8	2	1.3	77.5	73.5	78.1	7	7	8	6	0	0	06	3	6
2/8	15.5°	163.3°	0600	99	06	22	14	8	1009.1	2	1.8	76.0	73.2	76.9	7	7	8	6	0	0	06	3	6
2/8	16.5°	162.1°	1800	98	06	13	14	2	1010.2	2	1.6	76.0	72.9	76.3	8	8	8	6	0	0	06	3	4
2/9	17.2°	161.6°	0000	96	09	09	14	2	1009.8	8	1.0	76.8	74.5	76.5	8	8	6	4	X	X	09	3	4
2/9	17.8°	161.1°	0600	96	11	17	14	8	1010.8	2	1.0	75.5	71.9	76.7	7	7	6	4	X	X	09	3	4
2/9	18.4°	160.5°	1200	98	13	18	14	2	1011.2	1	0.8	77.0	73.9	75.0	8	X	X	X	X	X	09	3	4
2/9	19.0°	160.0°	1800	96	11	14	61	6	1012.5	2	1.6	76.1	73.6	76.3	8	8	6	4	X	X	12	3	3
2/10	19.7°	159.5°	0600	96	11	10	61	6	1014.2	2	2.2	74.6	71.0	76.2	8	X	X	X	X	X	10	3	3
2/10	20.3°	158.9°	1200	XX	14	08	60	6	1013.2	7	1.4	74.1	71.1	76.1	8	8	X	X	X	X	10	3	3

Table 8.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 511/

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure		Temperature (° F.)			Clouds						Waves				
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
3/4	21.1°	157.5°	0600	99	09	17	00	0	1017.6	9	1	1.0	75.0	68.3	75.1	1	1	1	5	0	0	XX	X	X
3/6	21.2°	156.3°	0000	98	08	20	00	0	1018.6	6	1.5	75.7	68.3	74.8	4	4	1	5	0	0	0	07	3	5
3/6	21.8°	156.2°	0600	97	08	20	00	1	1020.7	2	1.5	73.2	67.3	74.7	6	6	1	5	0	0	XX	X	X	
3/6	22.2°	155.9°	1200	97	06	24	00	X	1021.3	8	1.0	72.0	66.8	72.8	X	5	X	X	X	X	07	3	7	
3/6	22.8°	155.6°	1800	98	08	20	03	2	1022.7	2	1.5	71.8	64.1	73.2	7	7	1	5	0	0	06	3	6	
3/7	23.3°	155.3°	0000	98	08	23	01	2	1021.7	7	2.8	74.0	65.6	72.8	2	2	1	5	0	0	07	3	6	
3/7	23.9°	155.0°	0600	98	08	22	02	0	1023.7	1	2.0	72.3	65.5	72.7	3	3	1	5	0	0	06	3	6	
3/7	23.9°	154.0°	1800	98	10	22	02	1	1023.4	2	1.5	71.9	61.6	71.3	6	6	1	5	0	0	08	3	6	
3/8	24.0°	153.5°	0000	98	09	18	02	5	1021.3	7	2.1	72.0	65.3	70.9	6	6	1	5	0	0	08	3	5	
3/8	23.9°	152.8°	0600	98	09	18	02	2	1022.7	2	1.2	71.4	64.0	70.3	5	5	1	5	0	0	08	3	5	
3/8	23.9°	152.2°	1200	98	09	20	00	X	1022.0	7	1.0	69.5	64.5	70.2	6	X	X	X	X	X	08	3	6	
3/8	23.9°	151.8°	1800	98	10	16	15	2	1022.7	3	1.0	71.6	61.9	70.8	7	7	4	5	0	0	09	3	5	
3/9	24.0°	151.3°	0000	97	10	21	02	2	1021.3	7	2.1	69.7	64.0	72.5	8	8	5	0	0	0	08	3	5	
3/9	24.0°	150.8°	0600	97	10	20	02	2	1022.0	2	1.1	71.2	64.0	71.0	8	8	8	5	0	0	08	3	5	
3/9	24.0°	150.1°	1200	97	10	24	00	2	1021.3	7	1.3	71.0	62.3	70.9	8	8	8	5	0	0	08	3	6	
3/9	24.0°	149.7°	1800	98	10	22	02	2	1022.7	3	1.7	70.9	64.0	71.3	7	7	4	5	0	0	08	3	6	
3/10	24.0°	149.2°	0000	98	09	18	01	2	1021.3	7	2.4	72.2	66.0	72.5	3	3	1	5	0	0	08	3	6	
3/10	24.0°	148.6°	0600	98	09	20	03	1	1022.7	2	1.4	70.9	65.0	71.8	7	7	7	5	0	0	08	3	6	
3/10	24.0°	147.9°	1200	98	09	20	01	1	1022.0	7	1.4	70.6	62.5	70.5	2	2	1	5	0	0	08	3	6	
3/10	24.0°	147.5°	1800	98	09	27	15	0	1022.0	2	0.5	70.6	62.0	71.7	4	4	1	5	0	0	08	3	6	

1/ All columns in USWB 1210-F are not included here. Those deleted are:

- |        |    |                        |
|--------|----|------------------------|
| Column | 2  | Day of week            |
| "      | 3  | Octant                 |
| "      | 13 | Barometer as read      |
| "      | 14 | Barometer as corrected |
| "      | 17 | Air temperature, °F.   |
| "      | 23 | Course of ship         |
| "      | 24 | Speed of ship          |
| "      | 31 | Diff. sea-air, °F.     |
| "      | 32 | Dew point, °F.         |

Table 8.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 51 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds							Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
3/11	24.0°	147.0°	0000	98	09	23	03	1	1020.0	7	1.9	70.9	63.0	71.1	5	5	1	5	0	0	08	3	6	
3/11	24.0°	146.5°	0600	98	09	22	02	1	1022.0	2	1.2	70.2	63.0	71.0	5	5	7	5	0	0	08	3	7	
3/11			1200	98	09	23	01	1	1020.0	8	1.0	69.7	62.4	70.5	2	2	1	5	0	0	08	3	8	
3/11	23.9°	145.5°	1800	98	08	22	25	1	1022.4	3	1.9	70.2	63.7	70.5	8	8	6	6	0	0	07	3	6	
3/12	23.6°	145.1°	0000	98	06	28	02	2	1020.7	7	2.0	70.1	64.7	70.1	8	8	7	5	0	0	06	4	8	
3/12	22.8°	145.6°	0600	98	07	26	02	2	1021.7	2	1.6	70.7	64.5	71.8	5	5	7	5	0	0	06	4	8	
3/12	22.1°	146.1°	1200	98	07	26	01	1	1020.0	7	1.7	72.0	67.0	72.5	2	2	7	5	0	0	06	4	8	
3/12	21.4°	146.2°	1800	98	07	23	02	1	1020.0	0	1.0	72.0	67.4	72.4	6	6	1	5	0	0	06	4	7	
3/13	20.7°	146.6°	0000	98	07	24	50	1	1016.6	7	2.8	71.9	68.8	73.0	8	8	1	5	0	0	06	4	8	
3/13	19.8°	146.9°	0600	97	08	22	80	2	1017.6	2	1.5	72.9	69.1	73.0	8	8	1	5	0	0	06	4	7	
3/13	19.3°	147.1°	1200	97	09	15	51	6	1015.9	7	2.3	71.9	70.2	73.1	8	8	7	4	0	0	06	4	7	
3/13	18.3°	147.5°	1800	98	09	18	03	8	1015.6	1	0.4	74.1	69.8	75.0	7	7	7	4	0	0	06	4	4	
3/14	17.7°	147.7°	0600	98	11	10	02	0	1014.2	1	1.5	76.2	71.2	74.9	2	2	1	5	0	0	XX	X	2	
3/14	17.0°	148.0°	1200	98	10	05	02	0	1014.2	7	1.5	75.0	71.0	75.2	1	2	1	5	0	0	07	5	3	
3/14	16.0°	148.5°	1800	98	13	06	02	0	1014.6	2	0.7	77.1	71.4	75.4	1	1	1	5	4	0	06	3	2	
3/15	15.2°	148.7°	0000	98	07	06	03	1	1012.9	7	2.1	77.5	71.7	78.0	6	3	8	6	9	9	07	4	3	
3/15	14.3°	149.0°	0600	98	05	06	02	2	1014.2	1	0.8	77.9	72.8	77.0	6	3	8	6	X	X	07	4	3	
3/15	15.0°	149.7°	1200	98	04	10	01	1	1013.9	8	1.0	76.9	72.0	76.9	2	2	1	5	0	0	08	5	3	
3/15	14.8°	150.2°	1800	98	06	15	02	0	1015.9	1	1.4	76.8	72.0	76.9	2	2	1	5	0	0	03	4	3	
3/16	15.3°	150.8°	0600	98	06	15	02	0	1017.6	2	3.0	77.7	72.4	76.8	0	0	0	9	4	0	06	4	2	
3/16	15.9°	151.4°	1200	98	06	15	03	0	1018.0	7	1.1	76.0	71.8	76.1	2	2	1	5	0	0	06	4	2	
3/16	16.6°	152.0°	1800	98	04	16	02	0	1020.3	2	2.0	77.1	71.0	76.3	2	2	1	5	0	0	03	2	3	
3/17	17.5°	152.5°	0000	98	04	18	03	0	1018.3	7	2.0	77.4	71.3	76.0	4	4	1	5	0	0	03	2	4	
3/17	18.3°	153.2°	0600	98	05	21	02	0	1020.3	2	1.8	75.2	70.0	75.1	3	3	1	5	0	0	03	2	5	
3/17	19.0°	153.5°	1200	98	05	17	02	0	1021.3	7	1.3	74.5	69.4	74.9	2	2	1	5	0	0	03	2	5	
3/17	19.9°	153.6°	1800	98	06	18	02	0	1023.4	2	2.2	74.3	69.0	73.9	3	3	1	5	0	0	03	2	4	
3/18	20.7°	153.7°	0000	98	04	14	02	0	1021.7	7	1.6	74.5	67.8	74.5	3	3	1	5	0	0	03	2	5	
3/18	21.6°	153.8°	0600	97	05	20	02	1	1022.4	2	1.6	74.0	69.1	73.2	6	6	1	5	0	0	03	2	5	
3/18	22.4°	153.9°	1200	98	05	16	02	1	1022.7	8	0.5	73.5	70.0	72.6	5	5	1	5	0	0	03	2	5	
3/18	22.9°	154.2°	1800	98	05	13	02	1	1023.0	2	1.5	73.8	69.6	72.7	6	6	1	5	0	0	03	2	5	
3/19	22.5°	155.0°	0000	98	07	09	02	2	1021.3	7	1.7	76.0	70.7	75.2	6	6	1	5	0	0	07	6	3	
3/19	22.0°	155.9°	0600	98	06	17	02	0	1022.0	1	0.7	75.0	69.6	74.9	2	2	1	5	0	0	07	X	3	
3/19	21.7°	156.6°	1200	98	08	19	02	0	1021.3	7	0.6	74.1	70.1	74.0	2	2	1	5	0	0	07	6	3	
3/22	21.3°	158.5°	0000	99	10	13	02	0	1020.3	7	2.5	79.5	69.5	75.6	1	1	1	5	0	0	07	3	2	
3/22	21.7°	159.3°	0600	98	06	22	00	1	1021.7	1	1.7	76.3	70.0	75.8	6	6	1	5	0	0	07	3	2	

Table 8.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 51 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
3/22	22.1°	160.2°	1200	98	06	19	02	1	1021.0	7	1.2	75.0	70.0	75.0	4	1	1	5	1	0	06	3	4
3/22	22.6°	161.1°	1800	98	08	17	00	1	1021.3	1	1.3	75.4	69.8	74.0	6	6	1	5	0	0	05	3	4
3/22	22.9°	161.7°	0000	98	13	15	02	1	1018.6	7	2.0	76.0	69.5	74.2	2	2	1	5	0	0	12	3	4
3/23	22.1°	161.5°	0600	98	16	06	02	0	1018.6	3	0.5	75.2	68.6	74.2	1	1	1	5	0	0	12	3	4
3/23	21.3°	161.3°	1200	98	16	07	00	0	1018.3	7	1.1	75.0	69.0	75.8	0	0	0	0	0	0	12	3	4
3/23	20.5°	161.1°	1800	98	09	12	03	1	1019.3	1	1.4	75.5	70.2	75.3	6	6	4	5	0	0	06	3	3
3/24	20.0°	160.9°	0600	98	11	11	01	1	1018.6	2	1.2	76.4	70.3	76.5	1	1	1	5	0	0	12	3	3
3/24	19.1°	160.6°	1200	98	11	10	02	0	1020.0	8	0.4	76.2	70.6	76.6	0	0	0	0	0	0	11	3	4
3/24	18.2°	160.4°	1800	98	09	18	15	1	1020.0	2	2.0	76.4	71.5	76.9	6	6	4	5	0	0	11	3	4
3/25	18.3°	159.7°	0000	98	09	19	02	2	1018.6	7	1.6	77.9	70.0	77.0	6	2	1	5	4	0	09	3	6
3/25	18.8°	159.2°	0600	98	07	14	02	1	1019.6	1	1.3	77.1	70.3	76.1	2	2	1	5	0	0	09	3	6
3/25	19.3°	158.6°	1200	98	09	16	03	0	1020.3	6	0.6	75.8	71.0	76.1	4	4	1	5	0	0	09	3	7
3/25	20.0°	157.8°	1800	98	07	17	80	2	1021.0	0	0.6	74.9	70.6	75.1	6	6	4	5	0	0	07	3	8
3/26	20.3°	157.3°	0000	98	08	24	03	1	1020.0	7	2.0	77.5	71.8	75.0	4	2	1	5	9	0	07	3	8
3/26	21.5°	155.7°	1800	98	10	26	15	2	1023.0	1	1.8	74.0	70.4	74.0	7	7	4	5	0	0	08	3	7
3/27	22.1°	155.3°	0000	98	11	26	03	1	1022.0	7	1.5	77.0	70.2	74.8	7	7	7	5	0	0	10	3	8
3/27	22.6°	154.6°	0600	98	10	26	02	1	1023.0	2	1.5	75.6	68.7	74.5	2	2	7	5	0	0	09	3	8
3/27	22.7°	154.2°	1200	98	10	20	02	2	1023.7	8	1.0	73.8	67.0	72.0	7	7	7	5	0	0	09	3	8
3/27	23.3°	153.1°	1800	98	11	18	15	2	1025.7	2	1.4	74.4	67.4	72.9	7	7	4	5	0	0	09	3	6
3/28	23.7°	152.5°	0000	98	12	22	01	1	1024.7	7	2.0	75.2	66.5	72.6	1	1	1	5	0	0	09	3	7
3/28	24.2°	151.5°	0600	98	10	18	02	0	1025.7	2	2.3	73.9	66.5	73.8	1	1	1	5	0	0	09	3	5
3/28	24.2°	150.9°	1200	98	10	20	03	1	1025.4	7	1.6	70.5	67.0	72.9	6	6	7	5	0	0	09	3	6
3/28	24.2°	150.0°	1800	98	09	22	02	0	1025.4	3	1.0	71.8	64.4	71.7	2	2	1	5	0	0	09	3	6
3/29	24.1°	149.3°	0000	98	11	21	01	0	1023.0	7	2.0	72.1	64.3	72.0	1	1	1	5	0	0	10	3	7
3/29	24.1°	148.8°	0600	98	08	19	02	1	1025.1	1	1.8	72.5	65.5	71.7	6	6	1	5	0	0	10	3	5
3/29	24.0°	148.1°	1200	98	10	23	02	2	1024.4	7	1.5	71.6	64.5	71.9	6	3	1	5	3	0	10	3	6
3/29	23.7°	147.6°	1800	98	10	20	15	2	1025.4	2	1.4	71.9	64.8	71.6	5	5	4	5	0	0	09	3	6
3/30	23.1°	147.2°	0000	98	08	20	21	2	1022.7	7	2.5	71.0	65.5	71.4	6	5	7	5	0	0	09	3	8
3/30	22.5°	146.7°	0600	98	09	26	00	2	1023.0	3	1.2	72.2	66.0	72.0	5	5	X	X	0	0	10	3	8
3/30	22.2°	146.3°	1200	98	10	22	00	2	1021.3	7	1.2	71.9	65.0	72.2	6	5	7	5	9	0	10	3	8
3/30	21.6°	145.7°	1800	98	08	24	15	2	1022.7	0	1.5	72.7	65.9	72.2	5	4	7	5	3	0	08	3	8
3/31	21.1°	145.6°	0000	98	10	20	02	2	1020.0	7	2.0	72.8	64.9	72.9	6	2	1	5	4	9	10	3	8
3/31	20.3°	145.5°	0600	98	10	21	02	2	1021.0	1	1.6	72.6	65.9	72.8	6	2	1	5	4	9	10	3	8
3/31	19.7°	145.9°	1200	98	10	19	02	2	1019.3	7	2.2	71.7	67.8	73.3	6	6	7	5	0	0	10	3	8
3/31	19.0°	146.6°	1800	98	09	19	15	2	1019.6	3	0.5	74.0	67.1	73.8	7	6	4	5	3	0	07	3	5

Table 8.--Summary of weather observations (USWB 1210-F), Hugh M. Smith cruise 51 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds							Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
4/1	18.4°	147.2°	0600	98	10	20	00	1	1018.0	2	1.0	73.1	69.0	74.0	2	2	1	5	0	0	09	3	4	
4/1	17.6°	147.9°	1200	98	08	11	02	0	1016.6	7	1.4	74.0	69.5	74.7	1	1	1	5	0	0	09	3	4	
4/1	16.7°	148.2°	1800	98	07	14	02	0	1018.0	2	1.0	75.6	70.7	74.4	2	2	1	5	0	0	08	3	4	
4/2	15.9°	148.9°	0000	98	07	20	02	0	1014.9	7	2.5	75.8	71.3	75.5	3	3	1	5	0	0	08	3	4	
4/2	15.0°	149.5°	0600	98	05	22	02	1	1015.2	2	0.7	76.7	71.2	75.9	2	2	1	5	0	0	07	3	4	
4/2	15.7°	149.7°	1200	98	06	26	01	1	1014.2	8	2.0	75.0	69.6	75.2	2	2	1	5	0	0	07	3	7	
4/2	16.4°	150.3°	1800	98	05	25	02	1	1016.6	2	1.5	75.2	66.5	75.1	2	2	1	5	4	1	05	3	8	
4/3	16.4°	150.4°	0000	98	06	29	15	1	1013.2	8	2.0	75.0	70.0	75.5	5	5	4	5	0	0	06	3	8	
4/3	17.1°	150.8°	0600	98	06	23	80	1	1015.6	0	2.0	75.5	70.0	75.4	2	2	4	5	0	0	06	3	8	
4/3	17.9°	151.3°	1200	98	05	30	03	0	1015.6	8	1.0	73.5	69.0	75.2	3	3	8	5	0	0	56	3	1	
4/3	18.6°	151.8°	1800	98	04	27	02	0	1018.3	2	2.0	72.4	67.0	74.0	1	1	1	5	1	0	04	3	9	
4/4	19.4°	152.2°	0000	98	06	23	03	0	1016.6	8	2.2	74.5	66.4	74.7	4	1	1	5	9	0	05	3	8	
4/4	20.4°	152.7°	0600	98	05	19	02	1	1019.0	1	2.1	72.7	64.4	73.9	2	2	1	5	0	0	04	3	7	
4/4	21.1°	153.1°	1200	98	08	16	01	1	1018.3	7	1.8	71.6	67.0	74.0	2	2	1	5	0	0	05	3	7	
4/4	21.8°	153.3°	1800	98	09	15	15	0	1015.9	3	0.7	73.4	67.0	73.9	2	2	1	5	3	0	07	3	6	
4/4	22.5°	153.9°	0600	98	11	14	18	2	1018.6	3	2.0	72.4	67.0	74.0	6	6	1	5	x	x	04	3	5	
4/5	23.3°	154.5°	1200	98	08	16	01	0	1017.6	7	1.4	70.5	66.4	72.0	2	2	1	5	0	0	05	3	5	
4/5	24.2°	154.9°	1800	97	09	14	81	8	1018.3	2	1.4	69.6	66.7	71.4	7	7	7	5	0	0	05	3	5	
4/6	23.8°	155.6°	0000	98	10	08	02	0	1015.6	7	2.5	72.8	67.7	73.0	3	3	1	5	0	0	08	4	3	
4/6	22.6°	156.1°	0600	98	14	14	00	1	1014.6	3	0.3	74.2	68.4	74.1	1	1	2	5	0	0	15	3	3	
4/6	22.2°	156.6°	1200	98	18	11	03	0	1013.9	8	1.2	74.3	69.3	74.0	2	2	1	5	0	0	15	3	3	

Table 9.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 44<sup>1/</sup>.

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure		Temperature (° F.)			Clouds							Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
4/30	21.7°	158.2°	1800	99	45	08	00	X	1018.0	X	XX	77.0	70.2	75.3	2	1	1	4	3	0	15	2	1
5/1	22.5°	158.4°	0000	99	09	18	02	0	1016.6	7	1.4	78.2	71.4	76.0	3	1	2	5	3	1	08	2	3
5/1	22.5°	158.4°	0600	99	11	18	00	0	1017.6	2	1.7	74.1	69.6	74.1	9	9	X	0	X	X	08	2	3
5/1	23.3°	158.4°	1200	98	12	13	00	0	1017.3	7	1.5	74.0	69.9	74.2	2	9	X	X	X	0	08	2	3
5/1	24.1°	158.3°	1800	99	12	16	01	1	1018.3	1	1.6	75.1	69.5	73.4	7	6	8	5	0	1	08	2	2
5/2	24.1°	159.2°	0000	98	12	13	02	2	1017.3	7	1.5	75.3	69.8	75.0	5	2	2	5	3	1	09	2	3
5/2	23.8°	158.9°	0600	99	12	14	02	2	1016.6	3	0.6	74.5	70.0	74.9	5	4	4	5	0	1	09	2	3
5/2	23.2°	160.5°	1200	98	13	14	00	1	1016.3	7	1.2	75.0	69.6	75.0	2	2	1	5	0	0	09	2	3
5/3	22.5°	161.0°	0000	99	10	05	02	0	1016.6	8	1.1	77.5	72.0	77.0	3	3	2	5	0	0	10	2	2
5/3	22.0°	161.2°	0600	99	07	10	02	0	1016.9	3	1.2	76.8	70.4	77.5	3	2	2	5	0	1	10	3	2
5/3	21.2°	161.9°	1200	98	08	08	00	0	1017.3	8	0.9	76.6	71.0	76.9	2	2	2	5	0	0	09	3	2
5/3	20.6°	162.2°	1800	99	07	11	02	0	1016.9	3	0.6	76.3	69.9	77.0	1	1	1	5	0	0	11	3	2
5/4	19.8°	161.8°	0000	99	07	11	02	0	1016.9	8	1.2	79.0	71.4	78.6	1	1	1	5	0	0	12	3	3
5/4	19.6°	162.1°	0600	99	07	10	03	1	1016.6	3	1.0	77.0	71.2	78.0	5	4	2	5	6	0	07	3	3
5/4	19.3°	161.3°	1200	98	11	09	03	2	1015.6	7	1.5	76.9	70.2	77.2	7	3	2	5	5	0	07	3	3
5/4	19.2°	160.8°	1800	98	09	08	15	2	1016.9	3	1.4	75.8	68.6	77.5	7	4	8	5	6	0	09	2	2
5/5	19.1°	160.9°	0000	99	08	16	01	2	1015.2	7	1.8	78.8	71.1	77.8	1	1	1	5	0	0	08	2	3
5/5	19.6°	160.2°	0600	99	08	12	03	0	1016.3	2	1.8	77.8	71.3	77.8	4	4	2	5	0	0	08	2	3
5/5	20.0°	159.5°	1200	98	10	14	00	2	1015.9	8	1.5	77.0	71.0	77.1	8	X	X	X	X	X	XX	X	3
5/5	20.5°	158.8	1800	98	08	14	01	2	1016.6	3	0.8	76.2	69.9	76.9	6	6	2	5	0	0	08	3	4

1/ All columns in USWB 1210-F are not included here. Those deleted are:

- |        |    |                        |
|--------|----|------------------------|
| Column | 2  | Day of week            |
| "      | 3  | Octant                 |
| "      | 13 | Barometer as read      |
| "      | 14 | Barometer as corrected |
| "      | 17 | Air temperature, °F.   |
| "      | 23 | Course of ship         |
| "      | 24 | Speed of ship          |
| "      | 31 | Diff. sea-air, °F.     |
| "      | 32 | Dew point, °F.         |



Table 9.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 44 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
5/9	20.8°	158.1°	0000	98	07 18	03	0	0	1016.3	8	1.2	78.5	71.4	77.0	4	4	2	5	0	0	06	3	4
5/7	21.3°	157.7°	0000	98	06 19	00	1	0	1017.6	7	1.0	78.0	71.5	75.9	4	4	2	5	0	0	06	2	4
5/7	22.0°	157.1°	0600	98	08 25	01	1	0	1019.0	3	2.0	75.6	71.0	74.3	2	2	2	5	0	0	06	2	4
5/7	22.5°	156.6°	1200	98	08 22	02	0	0	1019.6	8	0.8	75.6	70.0	74.4	2	2	2	5	0	0	06	2	4
5/7	23.0°	156.1°	1800	97	07 23	50	2	1	1020.7	2	1.0	73.2	69.3	73.5	7	7	7	4	0	0	06	2	4
5/8	23.5°	155.5°	0000	98	06 22	02	1	0	1021.3	8	0.8	77.1	69.3	74.7	3	3	2	5	0	0	07	2	5
5/8	23.4°	154.7°	0600	98	05 22	02	0	0	1022.0	3	1.4	73.2	69.0	75.0	2	2	2	5	0	0	07	3	5
5/8	23.4°	154.1°	1200	98	06 21	02	0	0	1021.7	8	1.3	75.4	69.2	74.8	2	2	2	5	0	0	07	3	5
5/8	23.9°	153.5°	1800	98	07 22	15	0	0	1023.4	2	1.6	74.4	68.7	74.6	4	4	2	4	0	0	06	3	5
5/9	24.5°	152.9°	0000	98	06 18	02	1	0	1023.0	7	0.8	73.7	65.4	74.1	4	4	2	4	0	0	07	3	7
5/9	24.5°	152.0°	0600	98	05 24	00	X	0	1022.0	3	0.8	69.9	65.2	72.9	9	9	X	X	X	X	07	3	6
5/9	23.9°	151.5°	1200	98	04 22	00	X	0	1021.3	7	2.0	69.7	59.3	73.0	5	3	2	4	5	X	XX	X	6
5/9	23.0°	151.8°	1800	98	04 14	02	0	0	1021.0	2	0.8	71.4	63.5	74.0	2	1	2	5	4	0	07	3	4
5/10	22.3°	151.2°	0000	98	07 15	15	2	0	1019.0	7	1.8	71.4	65.7	73.6	7	7	4	5	0	0	06	3	5
5/10	21.6°	150.7°	0600	98	10 10	00	0	0	1018.6	3	0.6	72.0	65.6	74.1	9	9	X	X	X	X	06	2	4
5/10	21.0°	150.2°	1200	98	04 15	00	0	0	1016.6	7	2.0	72.7	67.8	74.6	1	1	2	5	0	0	06	2	4
5/10	20.3°	150.1°	1800	98	05 15	15	2	0	1016.9	1	1.0	73.4	67.6	74.5	7	3	4	5	6	8	05	2	3
5/11	19.7°	150.4°	0000	98	07 16	15	2	0	1015.6	7	1.5	74.8	67.9	75.8	7	2	4	5	6	1	07	2	3
5/11	19.1°	150.9°	0600	98	05 15	01	1	0	1014.9	2	0.7	73.7	66.6	75.8	1	1	2	5	0	0	06	2	3
5/11	18.4°	151.5°	1200	98	05 16	00	X	0	1013.5	7	1.8	74.7	68.9	75.7	7	2	2	5	6	X	XX	X	3
5/11	17.4°	151.5°	1800	98	05 14	15	2	0	1013.9	3	1.0	73.7	65.9	75.7	7	5	2	5	6	1	04	2	3
5/12	17.4°	151.5°	0000	99	04 16	02	2	0	1012.2	7	2.0	76.5	69.5	76.0	6	2	2	5	6	1	05	2	3
5/12	16.6°	151.8°	0600	98	03 19	01	2	0	1012.9	3	1.0	75.2	67.8	76.8	5	9	X	X	X	X	04	2	3
5/12	15.9°	152.3°	1200	98	05 19	00	2	0	1011.5	6	1.8	75.7	68.7	77.4	6	2	2	5	6	X	04	2	3
5/12	16.7°	152.7°	1800	98	04 17	01	2	0	1012.9	1	1.2	74.8	67.2	76.5	7	2	4	5	4	0	03	2	4
5/13	17.3°	153.0°	0000	99	05 17	01	0	0	1012.5	7	1.0	75.6	68.8	76.5	1	1	1	5	0	0	04	2	4
5/13	18.2°	153.3°	0600	99	06 16	03	1	0	1014.9	2	2.0	74.6	68.8	75.4	5	9	X	X	X	X	05	2	4
5/13	18.9°	153.6°	1200	98	10 12	00	5	0	1015.9	8	0.8	74.6	68.5	76.0	2	2	1	5	X	X	04	2	3
5/13	19.6°	153.8°	1800	98	08 13	15	8	0	1017.6	2	2.0	75.2	67.0	75.4	5	3	2	5	4	0	05	2	3
5/14	20.4°	154.0°	0000	98	06 16	03	2	0	1016.9	8	0.7	74.7	70.2	75.8	7	7	1	4	6	0	04	2	3
5/14	21.1°	154.2°	0600	98	07 15	02	2	0	1018.6	2	1.5	74.0	67.8	74.8	6	2	2	5	3	0	05	2	3
5/15	22.5°	154.5°	0000	98	08 15	02	1	0	1020.7	8	1.2	75.0	69.2	75.3	3	3	2	5	0	0	06	2	4
5/15	23.0°	154.3°	0600	98	09 16	15	1	0	1020.3	3	1.0	74.4	68.8	75.0	5	4	2	5	4	0	06	2	4
5/15	24.0°	154.4°	1800	98	07 20	25	6	0	1021.0	2	1.5	72.6	68.6	74.8	6	4	4	4	3	0	07	2	4
5/16	24.0°	115.2°	0000	98	08 18	02	0	0	1020.0	7	1.2	74.2	68.6	75.0	4	4	2	5	0	0	11	2	4

Table 9.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 44 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)				Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
5/16	23.2°	154.6°	0600	98	09	20	02	0	1020.0	3	1.2	74.3	68.8	74.9	2	2	2	5	0	0	09	2	4	
5/16	22.5°	155.0°	1200	98	08	20	02	0	1018.6	7	2.0	74.5	70.0	75.5	4	2	2	5	6	0	09	2	4	
5/16	21.8°	155.4°	1800	97	11	21	81	8	1019.3	3	1.0	72.8	68.7	73.5	8	6	4	4	7	8	09	2	4	
5/17	20.8°	155.8°	0000	98	09	17	15	0	1017.3	7	1.0	75.3	70.6	74.8	3	2	4	4	4	10	2	4	4	
5/17	20.1°	156.2°	0600	98	04	21	03	1	1015.9	5	0.0	76.3	68.8	77.0	6	1	2	5	3	0	04	2	4	
5/17	19.5°	156.6°	1200	98	32	03	02	2	1015.2	6	1.0	77.5	70.9	76.6	3	1	2	5	3	0	XX	X	3	
5/17	18.5°	157.3°	1800	98	10	18	03	1	1016.6	3	1.4	77.8	71.2	76.5	7	1	2	5	3	8	10	3	4	
5/18	17.8°	157.8°	0000	98	10	22	15	2	1015.2	6	2.0	77.7	73.0	77.3	7	2	7	5	3	8	09	3	4	
5/18	18.4°	158.0°	0600	98	10	18	01	1	1016.3	2	1.4	76.6	72.3	76.9	3	1	2	5	3	9	07	3	4	
5/18	19.2°	157.9°	1200	98	10	13	00	2	1015.9	7	1.2	76.8	71.9	76.8	7	2	2	5	3	X	07	3	3	
5/18	20.0°	158.0°	1800	98	10	14	15	2	1017.6	2	1.4	76.0	72.4	76.8	5	2	4	5	6	0	08	2	3	
5/19	21.0°	157.9°	0000	98	05	07	02	1	1017.3	7	1.0	77.8	72.4	77.8	3	3	2	5	0	0	05	2	3	
5/21	21.0°	158.4°	0000	98	20	07	02	2	1014.9	8	1.0	77.0	72.0	77.9	7	1	2	5	6	0	18	3	2	
5/21	20.5°	158.7°	0600	98	17	06	02	2	1014.9	2	1.0	76.4	71.8	77.3	6	3	2	5	0	2	17	3	2	
5/21	19.6°	159.2°	1200	98	19	06	02	0	1014.2	7	1.5	76.1	71.0	77.8	3	1	2	5	6	0	16	3	2	
5/21	19.1°	159.7°	1800	98	13	07	02	0	1014.9	2	1.2	76.8	71.0	78.2	2	1	2	5	0	1	13	3	2	
5/22	18.6°	160.4°	0000	99	07	04	02	0	1015.2	8	1.0	79.1	71.2	80.6	2	2	2	5	0	0	14	3	2	
5/22	18.0°	161.0°	0600	99	13	06	02	0	1014.2	3	0.8	77.5	71.8	78.9	1	1	2	5	6	0	14	3	2	
5/22	18.8°	161.0°	1200	99	00	11	02	0	1014.6	8	1.7	74.9	71.8	78.0	2	1	2	5	6	0	33	3	2	
5/22	19.5°	161.1°	1800	97	02	19	15	8	1014.9	3	1.0	74.0	70.0	77.2	8	8	5	4	X	X	35	3	3	
5/23	20.3°	161.1°	0000	97	04	17	02	2	1014.6	8	0.8	75.8	67.8	77.8	6	2	5	4	6	0	02	3	4	
5/23	21.1°	161.1°	0600	98	05	17	01	2	1014.9	2	1.0	74.2	65.8	77.4	6	6	5	4	0	0	36	3	5	
5/23	21.8°	161.0°	1200	98	03	10	00	2	1015.6	8	1.0	73.0	64.5	75.4	6	2	5	4	6	0	02	3	5	
5/24	23.1°	160.6°	0000	98	03	12	02	2	1015.6	6	1.0	73.5	64.7	75.4	6	4	5	4	6	0	36	3	3	
5/24	23.1°	161.2°	0600	98	04	11	15	2	1015.6	2	1.0	72.0	64.6	76.2	8	8	4	5	0	0	02	4	5	
5/24	23.8°	161.1°	1200	98	32	08	25	8	1015.6	7	0.9	69.0	64.5	74.8	2	2	2	5	0	0	02	4	5	
5/24	24.8°	161.2°	1800	97	03	07	15	2	1016.6	2	1.0	68.0	63.5	74.1	7	5	4	5	7	0	01	2	3	
5/25	24.3°	160.5°	0000	98	06	06	02	0	1016.9	8	0.4	72.0	64.7	76.1	2	2	2	5	0	0	01	3	5	
5/25	23.8°	159.7°	0600	98	07	09	03	2	1016.9	3	1.0	72.3	63.8	76.0	8	8	4	5	X	X	02	3	3	
5/25	23.3°	159.2°	1200	97	10	10	00	1	1016.3	8	1.5	73.1	66.5	75.2	7	1	2	5	6	0	02	3	3	
5/25	22.5°	158.3°	1800	98	07	12	80	8	1016.9	3	0.8	73.0	67.4	74.4	7	7	4	5	0	0	09	2	3	
5/26	21.8°	157.8°	0000	98	09	10	02	1	1015.9	7	1.0	76.0	71.6	76.0	3	2	2	5	6	0	10	2	3	
5/27	22.0°	156.9°	0600	98	12	13	01	2	1015.9	2	1.4	75.2	71.6	75.1	5	2	4	5	3	1	11	2	3	
5/27	22.4°	156.3°	1200	98	14	17	00	2	1016.3	7	1.2	74.9	70.8	75.1	2	1	4	5	3	X	12	2	3	
5/27	23.2°	155.5°	1800	98	14	09	03	2	1018.0	2	1.2	75.8	70.0	76.2	8	3	2	5	0	4	12	2	3	

Table 9.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 44 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
5/28	23.8°	154.6°	0000	98	13	12	02	2	1017.3	7	0.8	75.9	70.0	76.6	6	4	2	5	2	4	11	2	3
5/28	24.4°	153.7°	0600	98	12	11	03	2	1018.6	3	1.5	74.8	68.5	75.0	5	2	4	5	X	X	11	2	3
5/28	24.8°	153.0°	1200	98	12	10	00	2	1018.3	7	1.0	73.5	68.9	74.9	2	2	4	5	X	X	11	2	3
5/28	23.0°	153.0°	1800	98	11	10	03	1	1019.0	1	1.0	74.5	69.2	76.0	7	1	2	5	7	7	13	2	3
5/29	23.2°	152.8°	0000	98	12	12	15	2	1018.3	7	1.0	75.6	70.0	76.0	7	1	2	5	7	7	13	2	3
5/29	22.0°	152.7°	0600	98	14	09	01	1	1018.6	3	1.0	75.0	69.0	75.2	1	9	X	0	X	X	11	2	3
5/29	21.3°	152.8°	1200	98	08	17	00	2	1017.3	7	2.0	75.1	70.7	75.7	7	1	2	5	X	X	09	2	3
5/29	20.4°	152.7°	1800	98	08	20	15	8	1017.6	3	1.0	75.2	72.1	77.0	6	5	4	4	0	1	10	2	4
5/30	19.3°	153.0°	0000	98	07	19	15	8	1016.3	7	1.2	77.2	73.1	77.4	3	3	2	4	0	0	11	2	4
5/30	18.4°	152.1°	0600	98	09	18	00	8	1016.9	2	1.0	76.6	72.8	77.0	9	9	X	0	X	X	09	2	4
5/30	17.5°	153.0°	1200	98	07	19	00	1	1015.6	6	1.5	76.2	71.5	77.2	1	1	2	4	0	0	10	2	4
5/30	17.3°	153.8°	1800	98	07	16	01	0	1016.6	2	1.6	76.6	70.2	77.5	2	1	2	4	0	1	09	2	4
5/31	17.6°	154.3°	0000	98	05	15	02	0	1015.2	7	1.3	77.1	70.3	77.6	2	2	2	4	0	0	08	2	5
5/31	17.8°	155.2°	0600	97	06	17	02	0	1015.9	2	1.0	76.3	70.5	77.3	2	2	2	4	0	0	05	2	4
6/1	20.4°	156.6°	0600	98	07	18	03	0	1015.9	2	2.0	75.4	70.0	76.5	2	1	2	0	0	2	06	2	4
6/1	20.9°	157.5°	1200	98	08	19	00	0	1015.9	7	0.4	75.2	70.0	77.1	1	1	X	X	0	0	XX	X	3

Table 10.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 45<sup>1/</sup>

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure		Temperature (° F.)			Clouds							Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
7/10	21.1°	157.8°	0000	99	11	10	01	0	1016.3	8	1.0	77.5	71.8	78.6	1	1	8	6	1	0	04	3	2
7/10	21.1°	157.8°	0600	98	06	17	02	0	1016.3	2	1.0	76.8	72.4	78.6	2	1	1	6	1	0	06	3	2
7/10	21.2°	157.7°	1800	99	09	10	03	2	1018.0	2	1.9	77.9	73.4	78.0	7	6	8	6	1	0	08	3	2
7/13	21.5°	158.2°	1800	99	30	01	00	0	1018.3	3	1.0	78.4	71.0	78.9	1	0	9	6	0	16	3	0	
7/14	21.2°	158.2°	0000	99	03	02	03	0	1017.3	8	1.4	81.7	73.1	79.9	1	1	2	6	0	1	08	3	0
7/14	21.3°	157.9°	1800	99	05	15	00	2	1017.3	2	1.5	79.1	73.0	78.2	6	5	8	6	2	0	12	3	2
7/18	20.5°	158.3°	0000	99	06	18	03	1	1015.2	7	1.4	79.2	75.2	79.4	5	5	4	6	0	0	08	3	3
7/18	20.3°	158.9°	0600	XX	04	09	01	1	1015.6	2	1.4	80.1	74.9	79.2	4	4	4	6	0	0	07	3	2
7/18	19.6°	159.5°	1200	96	08	11	02	1	1015.2	7	1.4	78.5	75.6	78.5	4	4	4	6	0	0	07	3	2
7/18	19.0°	160.0°	1800	98	09	17	01	0	1018.3	3	1.6	79.8	75.3	78.6	3	1	2	6	0	4	10	3	3
7/19	18.4°	160.6°	0000	98	11	13	02	2	1013.9	7	1.9	80.0	75.3	79.1	6	6	2	6	0	0	11	3	2
7/19	18.2°	162.3°	0600	98	08	13	01	1	1013.9	2	1.2	80.0	75.3	79.8	1	1	4	6	0	0	08	3	2
7/19	18.7°	161.8°	1200	94	08	17	02	2	1014.2	8	1.0	78.9	74.5	79.5	5	5	1	6	0	0	08	3	3
7/19	19.2°	162.3°	1800	98	09	19	01	1	1014.6	3	0.7	80.0	74.5	79.4	1	1	4	6	0	0	05	3	3
7/19	19.8°	163.1°	0000	98	09	15	02	1	1015.2	7	1.0	80.0	74.3	80.0	4	4	4	6	0	0	08	3	3
7/20	20.6°	163.6°	0600	98	07	18	15	0	1015.2	2	1.4	79.9	75.2	79.9	4	4	1	6	0	0	07	3	3
7/20	21.2°	164.1°	1200	94	10	16	02	1	1016.3	7	1.0	78.8	74.6	79.0	4	4	2	6	0	0	09	3	3
7/20	21.9°	164.8°	1800	98	09	13	03	0	1016.6	3	0.9	79.3	74.2	78.5	3	3	2	5	0	0	09	3	2
7/21	22.5°	165.4°	0000	98	09	13	02	1	1016.9	7	0.9	80.0	74.3	79.6	4	4	2	5	0	0	09	3	2
7/21	23.3°	166.1°	0600	98	08	14	01	0	1016.6	2	1.0	78.9	72.7	79.6	1	1	1	6	0	0	09	3	2

1/ All columns in USWB 1210-F are not included here. Those deleted are:

Column	2	Day of week
"	3	Octant
"	13	Barometer as read
"	14	Barometer as corrected
"	17	Air temperature, °F.
"	23	Course of ship
"	24	Speed of ship
"	31	Diff. sea-air, °F.
"	32	Dew point, °F.

Table 10.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 45 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure		Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
7/23	24.2°	165.7°	0000	98	10	09	03	2	1016.9	7	78.9	73.6	79.1	7	1	2	5	1	6	10	3	3
7/23	24.5°	165.1°	0600	98	10	09	02	2	1016.9	2	78.4	75.0	78.8	7	2	2	5	1	5	09	3	3
7/23	24.8°	164.0°	1200	98	07	09	01	0	1016.6	6	75.6	72.3	79.0	1	1	1	5	0	0	09	3	3
7/23	25.1°	163.2°	1800	98	08	08	03	1	1017.6	2	77.0	72.0	78.5	4	4	2	5	0	0	09	3	2
7/24	25.4°	162.1°	0000	98	07	00	01	0	1017.3	7	80.6	72.3	81.5	3	3	1	6	0	0	09	3	3
7/24	24.6°	161.2°	0600	98	07	02	03	1	1017.3	2	77.5	72.0	80.0	6	6	2	5	0	0	09	3	3
7/24	25.8°	160.8°	1200	98	09	07	01	1	1017.3	6	76.6	73.0	78.6	2	2	1	5	0	0	09	3	5
7/24	24.8°	160.3°	1800	98	09	03	02	0	1018.0	X	75.1	72.0	78.7	3	3	6	5	0	0	09	3	3
7/25	24.0°	159.6°	0000	98	10	05	01	0	1018.0	4	79.7	71.4	81.2	1	1	2	6	0	0	11	3	3
7/25	23.2°	159.0°	0600	98	11	07	03	1	1017.3	4	80.2	75.0	80.0	4	4	2	5	0	0	11	3	3
7/25	22.5°	163.5°	1200	98	10	10	25	0	1016.9	7	78.8	74.7	79.0	4	4	1	5	0	0	10	3	3
7/25	22.2°	157.6°	1800	98	00	00	01	0	1017.3	2	80.1	75.1	78.1	4	4	2	5	0	0	09	3	2
7/26	22.5°	157.1°	0000	98	10	07	25	1	1016.6	6	80.0	75.0	80.3	7	1	2	6	0	6	04	3	3
7/26	22.8°	156.3°	0600	98	10	02	20	2	1016.9	2	79.1	75.0	79.1	7	7	2	5	0	5	06	3	2
7/26	23.3°	155.5°	1200	97	07	17	20	2	1016.9	7	79.1	75.0	78.8	7	7	2	4	X	X	05	3	4
7/26	23.9°	154.8°	1800	98	09	18	01	0	1018.3	2	77.3	72.8	77.1	3	2	4	6	2	0	08	3	3
7/27	24.6°	154.2°	0000	98	06	09	02	0	1018.3	4	79.2	72.5	78.0	4	4	2	6	0	0	08	3	3
7/27	25.4°	153.5°	0600	95	08	15	02	2	1019.0	2	77.1	70.8	77.3	6	6	4	6	0	0	08	3	3
7/27	25.9°	153.0°	1200	97	10	16	01	2	1019.0	7	77.4	70.5	77.2	5	5	2	6	0	0	08	3	3
7/27	24.9°	152.9°	1800	98	09	15	00	2	1019.6	2	76.3	71.0	77.1	6	5	8	6	0	1	08	3	3
7/28	23.9°	152.9°	0000	98	10	12	02	2	1018.6	7	78.0	72.1	77.5	5	4	8	6	0	1	10	3	3
7/28	23.0°	152.9°	0600	98	07	13	01	1	1018.3	3	77.2	72.2	77.6	3	3	8	6	0	0	10	3	2
7/28	22.1°	152.9°	1200	97	08	18	03	1	1016.9	7	77.3	73.1	78.0	6	6	8	5	0	0	10	3	3
7/28	21.1°	152.9°	1800	98	08	10	50	2	1016.9	2	75.2	74.0	77.7	6	6	8	5	0	0	10	3	2
7/29	20.2°	152.9°	0000	98	08	14	15	1	1015.6	7	79.5	74.5	78.4	4	4	8	5	0	0	09	3	2
7/29	19.1°	152.9°	0600	95	08	14	02	0	1015.2	3	77.9	74.3	77.9	3	3	8	5	0	0	09	3	2
7/29	18.4°	152.9°	1200	98	08	14	02	0	1013.5	7	78.0	75.0	78.0	4	4	8	5	0	0	08	3	2
7/29	17.3°	153.0°	1800	98	08	13	15	2	1013.9	2	78.0	74.8	78.1	6	6	4	5	0	0	10	3	2
7/30	17.0°	153.7°	0000	98	09	10	02	1	1013.2	7	83.0	75.3	78.8	4	4	8	6	0	0	09	3	2
7/30	16.8°	154.7°	0600	95	07	15	00	0	1013.2	3	79.5	74.5	78.6	3	3	8	6	0	0	09	3	2
7/30	17.0°	155.6°	1200	95	05	13	02	0	1012.9	7	78.9	74.9	78.4	2	2	8	6	0	0	09	3	2
7/30	17.4°	156.2°	1800	98	08	14	03	1	1013.9	2	79.4	75.0	78.5	5	5	1	5	0	0	08	3	2
7/31	18.4°	156.7°	0000	98	09	13	03	2	1013.2	8	78.9	74.2	79.4	6	1	4	5	0	4	09	3	2
7/31	19.3°	157.2°	0600	97	02	08	15	1	1013.9	2	81.5	75.4	80.8	3	3	2	6	0	0	06	2	2
7/31	20.2°	157.5°	1200	95	07	14	01	0	1013.5	X	80.3	75.6	80.2	2	2	2	X	0	0	08	2	2

Table 10.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 45 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves			
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Armt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
8/3	21.3°	158.3°	0000	98	08	11	00	1	1014.6	8	1.6	84.1	74.3	81.0	4	4	1	6	0	0	0	12	2	2
8/4	21.2°	158.4°	0000	99	07	13	03	1	1013.9	8	1.5	80.7	75.7	80.5	7	7	1	6	0	0	0	07	2	3
8/4	21.3°	158.2°	0600	98	09	10	01	0	1013.5	2	1.0	79.5	72.5	80.0	1	1	8	6	0	0	0	XX	X	X
8/4	21.1°	158.2°	1800	98	09	09	03	2	1014.2	3	0.9	80.7	71.1	80.0	7	7	2	5	0	0	0	XX	X	X
8/5	21.2°	158.1°	0000	99	07	25	02	0	1012.5	7	1.5	81.3	72.9	79.9	5	5	1	6	0	0	0	13	2	2
8/10	20.9°	158.3°	0000	99	09	15	01	0	1015.2	8	1.7	79.4	75.8	78.8	1	1	1	6	1	0	07	2	3	
8/10	21.3°	158.2°	0600	97	08	12	00	1	1015.9	2	2.0	79.5	74.0	78.6	4	4	4	4	0	0	XX	0	0	
8/10	21.4°	158.2°	1800	98	02	06	00	X	1016.9	2	1.0	80.0	70.4	78.8	1	1	4	4	0	0	15	0	0	
8/11	21.2°	158.1°	0000	99	09	14	03	0	1015.2	6	1.6	80.8	74.6	79.0	1	1	4	4	0	0	10	2	2	
8/14	21.5°	157.7°	1800	98	08	12	00	X	1016.6	2	1.0	79.3	73.0	73.4	4	4	4	4	0	0	09	2	2	
8/15	21.0°	157.2°	0000	99	02	19	01	0	1014.9	7	1.5	81.3	73.6	79.4	2	1	1	4	4	0	04	2	2	
8/17	21.5°	158.3°	0600	98	01	09	00	X	1012.5	2	1.0	79.0	71.5	79.2	5	5	4	4	0	0	XX	X	X	
8/17	21.4°	158.8°	1800	98	10	07	00	X	1013.2	2	1.0	80.3	70.5	79.1	4	4	4	4	0	0	18	2	1	
8/18	21.1°	157.8°	0000	98	06	15	02	0	1011.9	6	1.4	78.1	73.6	79.1	1	1	1	4	0	0	06	2	3	
8/19	21.1°	157.9°	0000	98	03	15	01	0	1013.5	7	0.6	79.0	74.9	79.4	1	1	1	4	1	0	04	2	3	
8/20			0000	98	09	14	02	0	1015.6	7	1.4	81.1	76.0	80.0	1	1	1	4	0	0	08	2	2	
8/24	21.5°	158.4°	0000	98	23	10	03	0	1013.2	6	1.1	81.8	74.0	80.1	1	1	1	4	0	0	02	2	2	
8/26	21.1°	156.8°	0000	98	07	20	03	0	1012.9	8	1.5	80.1	74.8	78.2	2	2	1	4	1	0	07	2	3	
8/26	20.9°	156.5°	0600	97	30	16	00	X	1014.6	2	2.0	77.3	72.2	79.1	9	X	X	X	X	X	XX	X	0	
8/27	21.0°	156.6°	1800	97	07	18	00	X	1015.2	4	0.0	77.9	72.4	78.4	5	4	4	4	0	1	08	2	3	
8/28	20.8°	157.0°	0600	98	00	16	01	1	1013.2	2	1.5	78.0	70.0	79.0	1	1	4	4	0	0	XX	1	0	
8/28	20.7°	157.0°	1800	98	14	06	00	X	1013.9	1	1.0	79.3	69.0	79.8	3	3	4	4	0	0	03	1	1	
8/29	21.0°	157.9°	0000	99	11	27	01	0	1013.9	0	0.6	79.7	73.6	79.7	1	1	1	4	2	0	08	2	3	
8/30	21.1°	158.1°	0000	98	10	20	03	0	1013.9	6	1.5	84.2	73.8	79.5	2	2	1	4	0	0	10	2	2	
8/31	21.4°	158.4°	0000	98	05	19	01	0	1013.2	7	1.2	81.2	74.0	74.3	1	1	1	4	0	0	05	2	3	
8/31	21.4°	158.2°	0600	98	03	11	00	0	1012.9	2	1.0	78.1	69.0	79.1	1	1	4	4	0	0	XX	0	0	
8/31	21.5°	158.3°	1800	98	34	10	00	0	1013.5	2	0.8	79.3	70.5	79.0	1	1	4	4	0	0	34	1	1	
9/1	21.3°	158.1°	0000	98	02	21	01	0	1011.5	7	1.5	80.1	73.5	79.4	1	1	1	4	0	0	12	2	4	

Table 11.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 46<sup>1</sup>/

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
9/17	21.4°	158.3°	0000	98	12	10	01	2	1014.2	7	2.0	82.3	73.3	80.2	3	3	1	6	1	0	15	3	2
9/18	21.2°	158.0°	1800	97	08	16	00	X	1014.9	2	1.0	80.4	74.6	79.7	3	3	2	4	0	0	13	2	2
9/19	21.4°	158.2°	0000	98	05	14	03	1	1014.2	8	0.9	81.0	72.8	80.3	7	7	4	5	0	0	04	2	2
9/19	21.2°	157.8°	1800	97	10	14	00	X	1017.3	2	1.0	79.1	73.0	78.4	7	3	2	4	1	0	13	2	2
9/20	21.5°	157.8°	0600	97	01	14	00	2	1017.6	2	1.2	79.0	71.5	79.1	X	X	X	X	X	X	01	2	0
9/20	21.5°	157.8°	1800	97	04	16	02	2	1017.6	2	1.0	79.2	72.2	78.5	6	6	1	4	0	0	04	2	0
9/21	21.5°	157.7°	0000	98	08	14	01	0	1014.6	X	XX	79.0	72.0	79.3	4	4	1	4	0	0	09	3	4
9/21	21.2°	158.3°	0600	97	30	08	00	1	1015.2	2	0.4	78.5	70.0	80.4	2	2	1	4	0	0	XX	2	0
9/21	21.7°	158.1°	1800	97	08	15	00	X	1015.2	2	1.0	77.0	72.8	78.9	6	6	1	4	0	0	04	2	3
9/22	21.3°	158.2°	0000	98	08	15	03	0	1013.2	7	2.0	82.7	72.2	80.4	3	3	1	4	0	0	08	2	3
9/22	21.4°	157.8°	1800	97	08	22	00	0	1014.6	2	1.0	80.8	74.2	79.2	3	1	2	4	4	0	13	2	3
9/23	20.8°	157.2°	0000	98	08	21	00	0	1012.9	8	2.1	79.8	74.1	80.1	1	1	2	4	1	1	10	2	4
9/23	20.7°	157.0°	0600	98	33	06	01	1	1014.6	2	1.2	80.0	71.0	81.0	X	X	X	X	X	X	33	2	0
9/23	20.7°	157.0°	1800	98	03	09	00	X	1014.6	2	1.0	80.1	71.6	79.8	2	2	1	4	0	0	03	2	0
9/24	20.9°	157.5°	0000	98	27	02	03	X	1013.2	8	1.5	81.1	72.8	80.9	6	6	4	4	0	0	02	2	2
9/25	21.2°	157.8°	1800	97	08	20	00	X	1015.9	2	1.0	80.0	73.0	79.6	7	7	1	4	0	0	13	2	2
9/26	21.2°	158.0°	1800	98	36	05	00	X	1015.9	2	1.0	78.6	73.0	79.8	3	3	4	4	0	0	20	2	1
9/27	21.5°	158.3°	0000	98	04	04	03	1	1014.6	8	1.7	83.4	73.8	82.2	6	5	4	4	2	0	16	2	1
9/30			0000	98	09	15	02	2	1013.5	7	2.1	80.7	75.6	80.6	6	4	2	4	6	2	19	2	3
9/30	19.8°	157.2°	0600	96	09	10	20	2	1015.6	2	2.0	77.9	75.0	80.2	7	X	X	X	X	X	09	2	2

1/ All columns in USWB 1210-F are not included here. Those deleted are:

- Column 2 Day of week  
 " 3 Octant  
 " 13 Barometer as read  
 " 14 Barometer as corrected  
 " 17 Air temperature, °F.  
 " 23 Course of ship  
 " 24 Speed of ship  
 " 31 Diff. sea-air, °F.  
 " 32 Dew point, °F.

Table 11.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 46 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure		Temperature (° F.)				Clouds						Waves			
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height	
9/30	19.2°	157.3°	1800	96	08	09	20	6	1015.2	2	1.4	77.5	75.0	80.5	9	X	X	X	X	X	X	18	2	2
10/1	19.5°	157.1°	0000	98	18	07	01	2	1012.0	7	2.2	80.9	74.4	81.2	7	5	2	4	6	0	12	3	3	
10/1	18.7°	156.5°	0600	96	07	16	02	2	1013.5	2	1.7	80.7	74.0	79.1	8	X	X	X	X	X	X	13	3	4
10/1	18.1°	155.9°	1200	96	09	14	01	0	1012.5	7	1.3	79.5	74.3	79.7	3	X	X	X	X	X	X	06	3	3
10/1	17.2°	155.1°	1800	97	06	13	02	0	1014.2	2	2.0	80.8	74.5	80.0	3	2	8	4	6	0	08	3	3	
10/2	17.5°	154.6°	0000	98	04	12	02	0	1012.5	7	1.9	79.7	74.1	80.0	4	3	2	4	6	0	06	2	3	
10/2	17.2°	154.0°	0600	96	06	10	01	0	1013.2	2	1.5	79.8	74.4	79.9	2	X	X	X	X	X	X	06	3	2
10/2	17.1°	153.5°	1200	96	07	07	03	2	1012.2	7	1.7	79.2	73.0	80.3	7	X	X	X	X	X	X	06	3	2
10/2	17.0°	153.1°	1800	98	08	12	01	0	1013.5	2	1.8	79.9	74.8	81.0	2	2	8	0	0	0	09	3	2	
10/3	17.9°	153.2°	0600	96	09	10	02	0	1013.2	2	1.5	78.1	72.9	79.7	2	X	X	X	X	X	X	08	3	2
10/3	18.5°	153.2°	1200	96	05	05	20	2	1013.5	4	0.0	76.7	73.3	78.9	7	X	X	X	X	X	X	00	X	1
10/3	19.2°	153.2°	1800	97	08	09	18	2	1014.2	2	1.5	77.7	72.0	78.1	6	4	5	3	6	0	04	2	1	
10/4	20.4°	153.1°	0000	99	08	06	01	0	1013.2	6	2.0	78.5	72.6	78.9	1	1	2	4	0	0	03	2	1	
10/4	21.3°	153.0°	0600	99	08	06	02	0	1014.9	2	2.0	77.0	69.8	79.0	3	X	X	X	X	X	X	03	2	1
10/4	22.1°	153.0°	1200	97	08	11	02	0	1014.6	7	1.0	76.4	72.0	78.0	3	X	X	X	X	X	X	03	2	1
10/4	22.9°	153.0°	1800	97	00	02	02	0	1015.2	2	1.5	76.0	71.7	77.7	2	2	2	5	0	0	03	2	1	
10/5	22.8°	153.6°	0600	97	13	12	03	2	1015.6	2	2.0	78.1	73.9	78.5	7	X	X	X	X	X	X	09	3	2
10/5	22.3°	154.2°	1200	96	13	13	02	2	1015.2	7	1.0	78.3	73.8	78.4	4	X	X	X	X	X	X	10	3	3
10/5	21.6°	155.1°	1800	98	11	11	03	1	1015.6	2	1.2	79.8	74.8	78.4	5	5	8	5	0	0	13	3	2	
10/6	21.2°	155.7°	0000	99	12	09	01	1	1014.2	7	2.0	79.6	75.8	79.7	2	2	2	5	6	0	13	3	1	
10/9	20.4°	157.9°	0600	97	13	10	02	2	1014.2	2	2.0	81.1	74.1	80.8	6	X	X	X	X	X	X	13	3	3
10/9	19.6°	158.2°	1200	97	16	12	03	2	1015.2	8	0.5	76.5	70.8	80.0	8	X	X	X	X	X	X	09	4	3
10/9	19.0°	158.9°	1800	98	09	12	03	1	1015.2	2	1.0	80.0	74.1	80.0	5	5	8	5	0	0	09	3	2	
10/10	18.5°	159.4°	0000	98	11	10	02	0	1013.9	7	1.9	81.1	73.7	80.8	2	2	8	4	0	0	12	3	3	
10/10	18.0°	160.1°	0600	97	08	15	02	2	1015.6	2	2.0	80.0	74.2	80.0	6	6	8	4	0	0	09	3	3	
10/10	17.0°	160.1°	1200	96	12	17	02	2	1014.9	7	1.0	80.3	74.7	80.0	8	8	8	4	0	0	09	3	4	
10/10	16.4°	160.1°	1800	97	09	14	02	2	1014.9	2	1.0	80.8	75.8	80.5	6	6	8	4	0	0	08	3	4	
10/11	15.5°	160.2°	0600	96	08	16	20	2	1013.9	2	1.8	81.0	76.7	80.9	8	8	8	4	0	0	06	3	3	
10/11	15.6°	160.6°	1200	96	07	12	02	2	1013.9	8	1.0	80.2	77.1	80.8	5	3	8	4	6	0	06	3	3	
10/11	16.1°	161.3°	1800	98	05	14	02	2	1014.9	2	2.0	79.5	76.0	80.0	4	4	8	5	0	0	07	3	3	
10/12	16.6°	162.3°	0000	98	07	17	02	0	1012.9	7	2.5	80.4	75.4	81.0	4	4	8	5	6	0	07	3	3	
10/12	17.1°	163.0°	0600	98	08	12	02	0	1013.9	2	1.7	80.0	74.9	80.6	3	3	2	5	6	0	07	3	3	
10/12	17.5°	163.4°	1200	97	05	10	01	0	1014.6	7	1.0	79.4	73.9	80.6	3	3	2	5	0	0	07	3	3	
10/12	18.5°	163.9°	1800	98	09	14	03	0	1015.2	2	1.0	80.0	73.7	81.2	4	4	2	4	6	0	07	4	3	
10/13	18.7°	164.3°	0000	98	08	09	02	0	1014.6	7	2.0	81.8	74.0	80.6	4	4	8	5	6	0	08	4	3	



Table 11.--Summary of weather observations (USWB 1210-F), Charles H. Gilbert cruise 46 (con.)

Date, 1959	Latitude N.	Longitude W.	Time (GCT)	Visibility	Wind		Weather		Pressure			Temperature (° F.)			Clouds						Waves		
					Direction	Speed (kn.)	Present	Past	Bar. corr. (mb.)	Characteristic	Amt. change	Dry bulb	Wet bulb	Sea water	Total amount	Amount low	Type low	Height low	Type middle	Type high	Direction	Period	Height
10/13	18.1°	165.0°	0600	98	06	13	02	0	1014.6	2	1.0	80.9	74.8	81.7	3	2	2	4	6	0	09	4	3
10/13	17.6°	165.4°	1200	98	08	14	02	0	1013.9	7	1.2	80.5	75.2	81.7	4	4	2	4	0	0	08	4	3
10/13	16.9°	166.1°	1800	97	10	12	18	1	1013.9	2	1.5	80.0	74.8	80.8	6	6	8	5	0	0	08	3	4
10/14	16.9°	166.6°	0000	97	09	11	02	1	1012.9	7	2.0	81.0	74.9	81.6	4	3	2	5	6	0	09	3	4
10/14	17.7°	167.2°	0600	96	10	15	03	2	1013.5	2	2.2	80.1	75.1	81.4	7	7	8	4	0	0	06	3	4
10/14	18.7°	167.3°	1200	97	04	10	02	0	1014.2	8	0.5	80.1	74.3	81.6	3	3	2	4	0	0	04	3	4
10/14	19.6°	167.5°	1800	98	04	17	03	1	1014.2	2	1.0	80.0	75.1	81.1	4	4	8	5	6	0	04	3	4
10/15	20.4°	167.0°	0000	98	06	13	02	0	1013.5	7	1.0	81.4	75.0	81.5	2	2	2	5	0	0	06	3	4
10/15	20.7°	166.3°	0600	98	07	13	03	1	1013.5	2	1.0	78.7	73.4	81.8	5	5	8	5	0	0	06	3	4
10/15	20.5°	165.6°	1200	97	07	14	03	2	1014.2	7	0.7	80.3	74.5	81.5	6	6	8	4	0	0	07	3	4
10/15	20.4°	164.5°	1800	98	06	12	01	1	1014.2	2	1.0	81.5	74.0	81.3	3	3	2	4	6	0	07	2	4
10/16	20.7°	164.0°	0000	98	04	12	03	1	1013.2	7	1.8	81.6	75.0	81.6	7	6	2	4	6	0	05	2	3
10/16	21.2°	163.1°	0600	97	09	12	02	2	1014.2	2	1.7	80.5	75.2	81.4	6	5	2	4	6	0	06	2	3
10/16	21.7°	162.8°	1200	97	07	14	01	0	1015.2	8	0.2	80.3	74.0	81.3	2	2	2	4	0	0	06	2	3
10/16	22.7°	162.2°	1800	98	08	12	02	0	1015.9	2	1.0	80.0	74.8	79.7	2	2	2	2	4	0	06	2	4
10/17	23.0°	161.9°	0000	98	11	14	02	0	1015.2	7	2.0	80.2	73.8	80.0	2	2	1	4	6	0	12	2	4
10/17	22.1°	161.6°	0600	97	07	14	02	0	1015.6	7	1.0	79.8	73.3	80.7	3	3	2	4	0	0	10	3	4
10/17	21.3°	161.3°	1200	97	09	16	01	1	1015.2	7	1.0	79.7	71.8	80.6	3	3	2	4	0	0	10	3	4
10/17	21.7°	160.4°	1800	98	08	18	02	0	1015.9	2	1.5	79.5	72.8	80.8	3	3	2	4	0	0	10	3	4
10/18	22.9°	157.5°	0600	97	10	14	03	1	1017.6	2	2.0	80.2	74.2	80.4	4	4	2	4	0	0	08	3	4
10/18	22.5°	159.3°	1200	97	08	12	02	0	1018.0	8	1.0	78.3	72.1	80.0	3	3	2	4	0	0	11	3	4
10/18	21.6°	158.5°	1800	97	08	16	03	0	1018.3	2	1.5	78.3	70.6	79.5	4	4	2	4	0	0	11	3	4

Table 12.--Light penetration and water color <sup>1/</sup>

Cruise	Date, 1959	Latitude N.	Longitude W.	Sea <sub>2/</sub>	Cloud cover <sub>2/</sub>	Water color (Forel)	Secchi disc (meters)
<u>Hugh M. Smith</u> 50	1/14	15°08'	149°37'	6	2	3	28
	1/16	16°39'	147°11'	7	3	3	26
	1/20	21°02'	148°00'	2	2	3	31
	1/22	24°32'	149°15'	5	1	2	33
<u>Hugh M. Smith</u> 51	3/13	18°23'	147°25'	3	2	-	31
	3/14	15°26'	148°35'	1	1	1	46
	3/15	14°49'	150°12'	2	2	2	40
	3/23	20°28'	161°03'	2	6	1	38
<u>Charles H. Gilbert</u> 45	6/19	19°39'	162°52'	3	3	2	33
	6/20	22°19'	165°12'	2	5	1	29
	6/22	24°03'	165°05'	2	5	1	36
	6/23	25°17'	162°24'	1	1	1	36
	6/27	24°13'	152°55'	2	5	1	36
	6/28	20°29'	152°51'	2	4	2	39
	6/29	16°57'	153°25'	3	4	1	41
<u>Charles H. Gilbert</u> 46	10/1	17°34'	154°58'	3	3	2	31
	10/2	17°00'	153°15'	1	3	2	33
	10/3	20°06'	153°07'	1	3	1	38
	10/4	22°50'	153°00'	2	3	1	35
	10/5	21°20'	155°33'	2	4 (?)	2	29
	10/9	18°41'	159°14'	2	4	3	31
	10/10	16°24'	160°51'	3	7	2	37
	10/12	19°01'	164°04'	2	4	1	27

<sup>1/</sup> All observations at local apparent noon.<sup>2/</sup> Sea state and cloud cover coded according to H.O. Pub. 606-c, second edition, 1956.

Table 13.--Zooplankton station positions and sample weights,  
Hugh M. Smith cruise 50

Station <sup>1/</sup>	Sample	Date, 1959 <sup>2/</sup>	Position		Water strained m. <sup>3</sup>	Weight (g./1,000 m. <sup>3</sup> ) <sup>3/</sup>
			Lat. N.	Long. W.		
1	1	1/10	17°28'	154°40.2'	1,338.4	26.2
2	1	1/11	14°41.5'	152°21'	1,154.4	9.5
3A	1	1/12	12°41.5'	150°23.5'	1,056.8	23.7
3B	1	1/12	12°42'	150°22'	1,291.8	33.3
5	1	1/13	13°30'	149°34.8'	1,361.2	37.5
7	1	1/14	15°43'	149°16.2'	1,459.3	41.8
9	1	1/15	17°14.5'	148°36.5'	1,654.1	27.2
11A	1	1/16	17°19.5'	147°16.3'	1,475.6	22.4
11B	1	1/16	17°19.5'	147°14'	1,358.0	15.5
12	1	1/17	20°20.5'	148°58'	1,403.5	12.1
13	1	1/19	21°48'	148°48.8'	1,544.7	18.1
15	1	1/20	21°19'	148°01.3'	1,431.7	19.6
17	1	1/21	23°13'	148°22.8'	1,315.8	19.0
19	1	1/22	23°14'	149°31'	1,495.7	21.4
20	1	1/23	19°55'	151°32.8'	1,372.5	14.6
21	1	1/24	19°55'	153°46.2'	1,373.2	9.5
22	1	1/25	22°52'	154°30'	1,467.4	36.1
24A	1	1/26	21°58.3'	153°13'	1,357.8	33.1
24B	1	1/26	21°57.8'	153°10'	1,610.9	27.9
25	1	1/28	18°02.5'	156°35.5'	1,634.2	22.6
26	1	1/29	18°11'	159°30.6'	1,400.1	18.6
27	1	1/30	20°32.2'	162°19.8'	1,407.8	32.0
28	1	2/1	19°44'	165°20'	1,246.4	12.8
30	1	2/2	18°05.2'	166°02'	1,471.5	27.9
31	1	2/3	16°25'	168°24.2'	1,526.6	41.9
33	1	2/4	15°52.2'	169°54'	1,394.4	32.3
35	1	2/6	13°38'	164°55'	1,481.9	16.9
36	1	2/7	15°34'	163°14'	1,559.2	39.8
37	1	2/8	17°56'	160°57.2'	1,522.6	26.3
39	1	2/9	19°40'	159°31'	1,551.9	36.1

N= 27  
Total= 679.0  
 $\bar{x}$ = 25.14

<sup>1/</sup> All hauls were oblique, from 60 m. to the surface, except those at stations 3B, 11B, and 24B. These three were oblique hauls from 140 m. to the surface; they were omitted in the averaging of sample weights.

<sup>2/</sup> All hauls were made between 1900 and 2200 hours.

<sup>3/</sup> Volumes determined as cc./1,000 m.<sup>3</sup> have been converted to g./1,000 m.<sup>3</sup>. Jellies longer than 2 cm. and other organisms longer than 5 cm. are not included.

Table 14.--Zooplankton station positions and sample weights,  
Hugh M. Smith cruise 51

Station <sup>1/</sup>	Sample	Date, 1959 <sup>2/</sup>	Position		Water strained m. <sup>3</sup>	Weight (g./1,000 m. <sup>3</sup> ) <sup>3/</sup>
			Lat. N.	Long. W.		
1	1	3/6	23°58.8'	155°00'	1,456.3	15.8
2	1	3/7	23°56.2'	152°48.8'	1,737.6	21.9
3	1	3/9	24°01.5'	148°32.8'	1,451.0	35.8
4	1	3/10	23°56'	146°30.5'	1,767.2	21.5
5	1	3/12	19°50.7'	146°52'	1,780.9	10.1
7	1	3/13	17°44'	147°42.8'	1,198.0	27.5
8	1	3/14	14°20.0'	149°06.5'	1,290.3	-- <sup>4/</sup>
10	1	3/15	15°21.8'	150°49.8'	1,305.1	11.5
11	1	3/16	18°17'	153°15'	1,500.4	14.0
12	1	3/17	21°37'	153°50.8'	1,428.0	32.2
13	1	3/18	22°02'	155°54.2'	1,709.0	29.3
14	1	3/21	21°43.5'	159°19.5'	1,624.4	19.7
17	1	3/22	21°56.7'	161°26'	1,608.0	29.9
20	1	3/23	19°46.5'	160°48'	1,700.9	26.5
21	1	3/24	18°56.8'	159°01.2'	1,386.2	51.9
22	1	3/27	24°11'	151°32.5'	1,683.3	29.7
23	1	3/28	24°03.3'	148°43.2'	1,594.8	29.5
24	1	3/30	20°18'	145°29.2'	1,570.8	21.0
26	1	3/31	18°22.8'	147°09'	1,841.1	27.2
27	1	4/1	14°58'	149°28.2'	1,348.4	14.8
31	1	4/5	22°36'	156°14'	2,015.3	51.1

N=20  
Total=520.9  
 $\bar{x}$ =26.04

<sup>1/</sup> All hauls were oblique, from 60 m. to the surface.

<sup>2/</sup> All hauls were made between 1900 and 2200 hours.

<sup>3/</sup> Volumes determined as cc./1,000 m.<sup>3</sup> have been converted to g./1,000 m.<sup>3</sup>. Jellies longer than 2 cm. and other organisms longer than 5 cm. are not included.

<sup>4/</sup> Sample almost entirely composed of salps; no weight taken.

Table 15.--Zooplankton station positions and sample weights,  
Charles H. Gilbert cruise 44

Station <sup>1/</sup>	Sample	Date, <sup>2/</sup> 1959	Position		Water strained m. <sup>3</sup>	Weight (g./1,000 m. <sup>3</sup> ) <sup>3/</sup>
			Lat. N.	Long. W.		
3	1	4/30	22°31'	158°24'	1,453.8	36.5
4	1	5/1	23°50'	159°56'	1,417.5	15.5
6	1	5/2	21°58'	161°20'	1,808.2	39.8
7	1	5/3	19°34'	162°10'	1,197.2	15.9
9	1	5/4	19°34'	160°12'	1,520.1	23.0
10	1	5/9	21°42'	150°35'	2,013.2	15.9
11	1	5/10	18°45'	150°45.5'	1,548.6	23.9
13	1	5/11	16°31'	151°49.5'	1,599.6	11.3
14	1	5/12	18°11'	153°19'	1,817.1	29.7
15	1	5/13	21°06'	154°21.5'	1,218.6	15.6
17	1	5/14	23°01'	154°22'	1,575.4	25.4
19	1	5/15	23°11'	154°38'	1,648.3	15.8
20	1	5/16	20°03'	156°14.5'	1,758.0	9.1
21	1	5/17	18°23'	157°59.5'	1,613.1	23.6
23	1	5/23	20°24'	158°28'	1,501.4	32.6
24	1	5/21	18°03'	161°03'	1,458.3	13.7
26	1	5/23	23°07'	161°10'	1,196.0	31.8
27	1	5/24	23°49'	159°42'	1,663.1	22.2
29	1	5/26	22°02.5'	156°56.5'	1,598.3	45.7
30	1	5/27	24°26'	153°44'	1,557.0	26.3
31	1	5/28	22°01'	152°38'	1,367.1	41.7
32	1	5/30	18°13'	155°14'	1,364.3	11.7

N= 22  
Total= 526.7  
x= 23.94

<sup>1/</sup> All hauls were oblique, from 60 m. to the surface.

<sup>2/</sup> All hauls were made between 1900 and 2200 hours.

<sup>3/</sup> Volumes determined as cc./1,000 m.<sup>3</sup> have been converted to g./1,000 m.<sup>3</sup>. Jellies longer than 2 cm. and other organisms longer than 5 cm. are not included.

Table 16.--Zooplankton station positions and sample weights,  
Charles H. Gilbert cruise 45

Station	Sample <sup>1/</sup>	Date, 2/ 1959	Position		Water strained m. <sup>3</sup>	Weight (g./1,000 m. <sup>3</sup> ) <sup>3/</sup>
			Lat. N.	Long. W.		
12	1	7/17	20°18'	158°55'	1,449.3	11.7
	2	7/17	20°18'	158°55'	--	--
	3	7/17	20°18'	158°55'	--	--
13	1	7/18	18°15'	161°15'	1,128.6	32.8
	2	7/18	18°15'	161°15'	--	--
	3	7/18	18°15'	161°15'	--	--
14	1	7/19	20°40.1'	163°41.5'	1,033.7	40.6
	2	7/19	20°40.1'	163°41.5'	--	--
	3	7/19	20°40.1'	163°41.5'	--	--
15	1	7/20	23°20'	166°10'	1,055.2	37.0
	2	7/20	23°20'	166°10'	--	--
	3	7/20	23°20'	166°10'	--	--
19	1	7/22	24°25'	164°46'	1,341.0	34.3
	2	7/22	24°25'	164°46'	--	--
	3	7/22	24°25'	164°46'	--	--
21	1	7/23	25°38'	161°06'	1,245.4	16.9
	2	7/23	25°38'	161°06'	--	--
	3	7/23	25°38'	161°06'	--	--
22	1	7/24	23°07'	159°00'	810.7	82.6 <sup>4/</sup>
	2	7/24	23°07'	159°00'	--	--
	3	7/24	23°07'	159°00'	--	--
25	1	7/25	22°50'	156°20'	1,124.5	50.7
	2	7/25	22°50'	156°20'	--	--
	3	7/25	22°50'	156°20'	--	--
26	1	7/26	25°23'	153°33'	1,172.4	70.8
	2	7/26	25°23'	153°33'	--	--
	3	7/26	25°23'	153°33'	--	--
27	1	7/27	22°58'	152°52'	1,198.9	42.5
	2	7/27	22°58'	152°52'	--	--
	3	7/27	22°58'	152°52'	--	--
28	1	7/28	19°13'	152°55'	1,119.6	26.8
	2	7/28	19°13'	152°55'	--	--
	3	7/28	19°13'	152°55'	--	--
29	1	7/29	16°48.5'	154°37.5'	1,283.8	21.0
	2	7/29	16°48.5'	154°37.5'	--	--
	3	7/29	16°48.5'	154°37.5'	--	--
30	1	7/30	19°19'	157°11'	1,364.1	22.0

N = 12  
Total = 407.1  
 $\bar{x}$  = 33.92

<sup>1/</sup> Plankton hauls 2 and 3 for stations 12 through 29 were surface tows of 20 minutes' duration, for collecting larval tuna; weights were not determined. The remaining hauls were oblique from 60 m. to the surface.

<sup>2/</sup> All hauls were made between 1900 and 2200 hours.

<sup>3/</sup> Volumes determined as cc./1,000 m.<sup>3</sup> have been converted to g./1,000 m.<sup>3</sup>. Jellies longer than 2 cm. and other organisms longer than 5 cm. are not included.

<sup>4/</sup> Questionable value due to unusual abundance of salps; value not included in the averaging of sample weights.

Table 17.--Zooplankton station positions and sample weights,  
Charles H. Gilbert cruise 46

Station 1/	Sample 2/	Date, 3/ 1959	Position		Water strained m. <sup>3</sup>	Weight (g./1,000 m. <sup>3</sup> ) 4/
			Lat. N.	Long. W.		
11	A	10/1	17°13'	154°00'	1,476.4	16.9
11	B	10/1	17°13'	154°00'	1,439.6	16.0
13	A	10/2	17°54'	154°17'	1,587.0	18.3
13	B	10/2	17°54'	154°17'	1,571.5	20.4
14	A	10/3	21°18'	153°02'	1,646.9	23.1
14	B	10/3	21°18'	153°02'	1,634.7	35.5
16	A	10/4	22°48'	153°42'	1,525.2	31.5
16	B	10/4	22°48'	153°42'	1,465.6	36.2
17	A	10/8	20°48'	157°33'	1,831.1	2.6
17	B	10/8	20°48'	157°33'	1,698.8	7.0
17	C	10/8	20°48'	157°33'	1,473.9	6.2
17	D	10/8	20°48'	157°33'	1,455.1	3.8
17	E	10/8	20°48'	157°33'	1,336.7	5.2
18	A	10/8	20°21'	157°54'	1,423.1	24.6
18	B	10/8	20°21'	157°54'	1,404.9	25.0
21	A	10/10	15°33'	160°15'	1,421.1	11.3
21	B	10/10	15°33'	160°15'	1,464.8	13.0
22	A	10/11	17°06'	163°01'	1,403.0	27.8
22	B	10/11	17°06'	163°01'	1,589.1	22.7
23	A	10/12	18°08'	164°57'	1,397.3	19.3
23	B	10/12	18°08'	164°57'	1,408.7	18.5
24	A	10/14	20°42'	166°19'	1,497.0	16.0
24	B	10/14	20°42'	166°19'	1,504.6	21.9
25	A	10/15	21°10'	163°09'	1,666.7	24.6
25	B	10/15	21°10'	163°09'	1,524.4	25.6
26	A	10/17	21°51'	159°32'	1,652.3	24.2
26	B	10/17	21°51'	159°32'	1,442.8	33.3
26	C	10/17	21°51'	159°32'	1,617.6	23.5
26	D	10/17	21°51'	159°32'	1,382.9	27.5

N = 11  
Total = 251.5  
 $\bar{x}$  = 22.86

1/ All hauls were oblique, from 60 m. to the surface, except at station 17, where five surface hauls were made.

2/ Samples other than "A" at each station were for serological studies of larval tuna.

3/ All hauls were made between 1900 and 2200 hours except at station 17, where the five surface hauls were made between 1207 and 1436.

4/ Volumes determined as cc./1,000 m.<sup>3</sup> have been converted to g./1,000 m.<sup>3</sup>. Jellies longer than 2 cm. and other organisms longer than 5 cm. are not included. Volumes of the five surface samples from station 17 were determined by R. S. Shomura. Total weight equals the average zooplankton weight at each station, with the exception of surface tows at station 17 which were not included.

Table 18.--Major zooplankton group composition of selected samples. Upper figure is number of individuals per 1,000 m.<sup>3</sup> of water strained; lower figure is percentage of the sample

Cruise number	Station number	Chaetognatha	Siphonophora	Medusae	Annelida	Copepoda	Euphausiacea	Decapoda	Amphipoda	Pteropoda	Heteropoda	Crustacean eggs and larvae	Fish eggs and larvae	Ostracoda	Mysidacea	Salps	Appendicularia	Pelecyopoda	Others
Hugh M. Smith 50	3A	2101 (11)	965 (5)	-	-	8289 (44)	1817 (2)	284 (0.9)	511 (3)	568 (3)	57 (0.3)	3132 (16)	114 (0.6)	227 (1)	-	57 (0.3)	-	114 (0.6)	-
	22	3680 (13)	491 (2)	82 (0.3)	491 (2)	13330 (45)	981 (3)	572 (2)	409 (1)	1390 (5)	82 (0.3)	736 (3)	900 (3)	4252 (14)	82 (0.3)	327 (1)	-	246 (2)	246 (1)
	5	4232 (19)	441 (2)	88 (0.4)	-	9345 (42)	2909 (13)	176 (0.8)	1146 (5)	1058 (5)	-	1939 (9)	176 (0.4)	-	88 (0.4)	88 (0.4)	-	88 (0.4)	176 (0.8)
	28	385 (3)	48 (0.4)	-	143 (1)	6643 (57)	1396 (12)	193 (2)	289 (2)	759 (7)	-	-	193 (2)	626 (5)	-	95 (0.8)	-	144 (1)	48 (0.8)
Hugh M. Smith 51	35	283 (2)	283 (2)	-	121 (0.8)	10128 (70)	688 (5)	40 (0.3)	364 (3)	1175 (8)	-	505 (3)	-	770 (5)	-	-	-	-	40 (0.3)
	19	1444 (15)	281 (3)	-	120 (1)	4413 (44)	411 (4)	160 (2)	120 (1)	481 (5)	-	682 (7)	-	842 (8)	321 (3)	40 (0.4)	-	40 (0.4)	160 (2)
	20	353 (2)	494 (2)	71 (0.3)	282 (1)	11359 (54)	2751 (13)	71 (0.3)	1693 (8)	127 (0.7)	141 (0.7)	635 (3)	635 (3)	2751 (13)	71 (0.3)	282 (1.3)	-	212 (1.0)	354 (2)
	17	1269 (4)	299 (1)	75 (0.3)	597 (2)	9179 (32)	1493 (5)	75 (0.3)	1343 (5)	1716 (5)	448 (2)	1652 (5)	286 (1)	9403 (33)	-	-	-	300 (1)	-
Charles H. Gilbert 44	23	677 (4)	226 (1)	38 (0.2)	-	7374 (46)	1354 (9)	151 (1)	376 (2)	2257 (14)	-	264 (2)	-	2333 (15)	-	75 (0.5)	-	113 (0.7)	38 (0.2)
	27	712 (5)	89 (0.7)	-	89 (0.7)	7476 (54)	1735 (13)	222 (2)	712 (5)	534 (4)	267 (2)	667 (5)	222 (2)	712 (5)	45 (0.3)	178 (1)	-	-	90 (0.7)
	4	272 (2)	407 (3)	68 (0.5)	-	9370 (65)	747 (5)	204 (1)	272 (2)	951 (7)	-	476 (3)	68 (0.5)	1222 (9)	-	68 (0.5)	-	68 (0.5)	204 (1)
	24	494 (4)	123 (1)	-	-	8681 (74)	247 (2)	-	535 (5)	165 (1)	82 (0.7)	740 (6)	1/ (1)	453 (4)	-	123 (1)	-	-	41 (0.4)

1/ Eggs and larvae removed for chromatographic analysis, by W. M. Matsumoto.



Table 18.--Major zooplankton group composition of selected samples. Upper figure is number of individuals per 1,000 m.<sup>3</sup> of water strained; lower figure is percentage of the sample (con.)

Cruise number	Station number	Chaetognatha	Siphonophora	Medusae	Annelida	Copepoda	Euphausiacea	Decapoda	Amphipoda	Pteropoda	Heteropoda	Crustacean eggs and larvae	Fish eggs and larvae	Ostracoda	Mysidacea	Salps	Appendicularia	Pelecyopoda	Others
	29	2102 (8)	400 (1)	-	225 (0.9)	14641 (55)	3228 (12)	150 (0.6)	1351 (5)	1126 (4)	375 (1)	300 (1.8)	-	2177 (8)	75 (0.3)	375 (1)	-	-	-
	21	149 (0.6)	74 (0.3)	-	149 (0.6)	16887 (67)	967 (4)	-	1711 (7)	595 (2)	446 (2)	-	-	3943 (16)	-	74 (0.3)	-	74 (0.3)	-
	30	154 (0.6)	-	-	-	16956 (68)	1696 (7)	-	385 (2)	1618 (6)	54 (0.6)	2312 (9)	-	1541 (6)	-	-	-	154 (0.6)	-
	31	527 (5)	44 (0.4)	-	881 (0.9)	5925 (59)	1843 (18)	88 (0.9)	351 (3)	263 (3)	-	-	-	702 (7)	-	132 (1)	-	44 (0.4)	44 (0.4)
<u>Charles H. Gilbert 45</u>	22	562 (3)	-	-	-	4720 (23)	112 (0.6)	112 (0.6)	1686 (8)	-	-	1461 (7)	-	1011 (5)	-	10900 (53)	-	-	-
	26	189 (0.7)	-	-	-	19608 (73)	3221 (12)	379 (1)	758 (3)	-	-	1080 (3)	95 (0.4)	1516 (6)	-	-	-	95 (0.4)	-
	25	296 (1)	296 (1)	-	99 (0.3)	15900 (54)	1778 (6)	395 (1)	1185 (4)	790 (3)	593 (2)	2370 (8)	888 (3)	3259 (11)	-	1086 (4)	-	-	-
	19	-	-	-	-	15239 (74)	1656 (8)	-	911 (4)	497 (2)	-	1490 (7)	166 (0.8)	414 (2)	-	83 (0.4)	-	-	83 (0.4)
<u>Charles H. Gilbert 46</u>	14	322 (1)	322 (1)	-	-	13215 (55)	752 (3)	537 (2)	1826 (8)	1719 (7)	214 (0.9)	967 (4)	644 (3)	1826 (8)	-	537 (2)	-	322 (1)	644 (3)
	16A	1023 (6)	315 (2)	-	-	8655 (54)	629 (4)	236 (1)	315 (2)	1652 (10)	157 (0.9)	1179 (7)	157 (0.9)	865 (5)	-	79 (0.5)	-	-	393 (3)
	11A	406 (4)	41 (0.4)	-	122 (1)	6462 (67)	610 (6)	122 (1)	447 (5)	203 (2)	-	365 (4)	203 (2)	366 (4)	-	163 (2)	-	-	122 (1)
	13A	1248 (11)	76 (0.6)	-	-	6656 (58)	1134 (10)	-	265 (2)	797 (7)	113 (1)	265 (2)	265 (2)	529 (5)	-	114 (1)	-	38 (0.3)	-

Table 18.--Major zooplankton group composition of selected samples. Upper figure is number of individuals per 1,000 m.<sup>3</sup> of water strained; lower figure is percentage of the sample (con.)

Cruise number	Station number	Chaetognatha	Siphonophora	Medusae	Annelida	Copepoda	Euphausiacea	Decapoda	Amphipoda	Pteropoda	Heteropoda	Crustacean eggs and larvae	Fish eggs and larvae	Ostracoda	Mysidacea	Salps	Appendicularia	Pelicypoda	Others
	21A	549 (7)	84 (1)	-	253 (3)	4855 (59)	929 (11)	-	464 (6)	422 (5)	84 (1)	169 (2)	127 (2)	253 (3)	-	84 (1)	-	-	-
	18A	1602 (8)	590 (3)	-	-	5650 (28)	944 (46)	337 (2)	506 (3)	675 (3)	-	253 (1)	253 (1)	506 (3)	84 (0.4)	253 (1)	-	169 (0.8)	169 (0.8)

Table 19.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Hugh M. Smith cruise 50

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface Fish Schools			Aquatic mammals
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	
1/10	0905	18°38'	155°45'	X (18)	Skipjack	6	Small	-
	1240	18°14'	155°22'	X (4)	? <sup>2/</sup>	-	-	-
	1420	18°04'	155°13'	-	-	-	-	1 Whale
	1500	17°58'	155°08'	-	-	-	-	1 Whale
	1550	17°53'	155°04'	-	-	-	-	1 Whale
	1610	17°50.5'	155°01.5'	-	-	-	-	4 Whales
	1800	17°41'	154°51'	-	-	-	-	1 Whale
1/12	1607	12°46'	150°41'	X (10)	?	-	-	-
1/15	1120	17°16'	149°17.5'	-	Skipjack	5	-	-
1/19	1055	16°41'	147°13'	-	-	-	-	1 Whale
1/23	1355	20°49'	150°55'	-	-	-	-	2 Whales
1/24	1400	19°08.5'	153°09'	X (21)	?	-	-	-
1/27	0920	20°40'	154°22.5'	X (65)	Yellowfin	15	-	-
1/28	1210	18°50'	155°34'	X (152)	Skipjack	8	-	-
	1330	18°43'	155°43'	-	Skipjack	6	-	-
	1415	18°37'	155°50.5'	X (250)	?	-	-	-
1/29	0848	17°56'	158°06'	X (20)	?	-	-	-
1/30	0720	19°17.5'	160°40'	-	Skipjack	Small	-	-
	0800	19°19'	160°49'	-	-	-	-	1 Whale
	0950	19°29'	161°03'	-	Skipjack	6	-	-
	1027	19°32'	161°07.5'	-	?	Small	-	-
	1125	19°36'	161°17'	X (15)	Skipjack	11	-	-
	1215	19°47'	161°30'	-	-	-	-	1 Whale
	1415	20°02.5'	161°47'	X (10)	Skipjack	3-4	-	-
1/31	1450	22°15'	162°43'	X (30)	Skipjack	8	-	-
	1500	22°16'	162°43'	-	-	-	-	1 Whale
2/4	1200	16°22'	170°31'	-	-	-	-	1 Whale
2/5	0820	14°58'	168°33'	X (20)	?	-	-	-
2/6	0850	14°56'	168°29'	X (9)	?	Small	-	-
2/8	1550	17°27'	161°18'	X (25)	?	-	-	-
2/9	1710	19°20'	159°50'	X (15)	Skipjack	-	-	-
2/10	1740	21°01.5'	158°16'	-	Skipjack	2-3	Small	-

<sup>1/</sup> X = Bird flock.

( ) = Number birds in flock.

<sup>2/</sup> ? = Species not determined.

Table 20.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Hugh M. Smith cruise 51

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface Fish Schools			Aquatic mammals
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	
3/5	1740	21°37'	156°16'	X (150)	Skipjack	-	Large	-
3/6	1020	23°01'	155°27'	X (50)	? <sup>2/</sup>	-	-	-
3/12	1315	20°49'	146°29'	-	-	-	-	2 Porpoises
3/13	1745	18°05'	147°35'	-	-	-	-	4 Porpoises
3/14	0945	15°48'	148°35'	X (10)	?	-	-	-
	1420	15°10'	148°45'	-	-	-	-	4 Whales
3/15	0915	14°48'	150°13'	X (15)	?	-	-	-
3/18	1210	22°34'	155°00'	X (60)	Skipjack	20	Large	-
	1535	22°25'	155°20'	X (75)	Skipjack	6-7	Large	-
	1540	22°25'	155°20'	X (25)	Skipjack	6	-	-
3/19	0700	21°21'	157°34'	X (50)	?	-	-	-
	0755	21°16'	157°42'	-	-	-	-	2 Whales
3/21	1720	21°35'	158°58'	X (15)	?	-	-	-
	1125	21°16'	157°54'	-	-	-	-	2 Sperm whales
3/22	0752	22°34'	161°04'	X (150)	?	-	-	-
	0850	22°44'	161°15'	X (7)	?	-	Small	-
	0955	22°45'	161°29'	X (15)	?	-	Small	-
	1000	22°45.5'	161.30'	X (8)	?	-	Small	-
	1036	22°58'	161°38'	-	-	-	-	3 Porpoises
	1045	22°57'	161°39'	X (12)	?	-	Small	-
	1055	22°57'	161°40'	X (15)	?	-	Medium	-
	1211	22°59'	161°48'	X (9)	-	-	-	1 Sperm whale
	1255	22°53'	161°47'	X (15)	Skipjack	1-2	Small	-
	1325	22°48'	161°44'	X (75)	Skipjack	4-5	Large	-
3/23	0810	20°29'	161°06'	X (40)	Skipjack	-	-	-
	1120	20°29'	161°06'	X (40)	Skipjack	-	Small	-
	1135	20°29'	161°06'	X (50)	Skipjack	-	Large	-
	1625	20°21'	161°00'	X (75)	?	-	Large	-
	1651	20°17'	160°58'	X (90)	?	-	Large	-
	1705	20°16'	160°58'	X (70)	?	-	-	-
3/24	1510	18°24'	159°39'	X (30)	Skipjack	8	Small	-
	1535	18°26'	159°36'	X (50)	Skipjack	18-20	Large	-
3/25	0650	19°56'	157°46'	X (15)	Skipjack	6	Small	-
	1548	20°46.5'	157°10'	X (50)	?	-	-	-
3/26	0728	21°32'	155°50'	X (10)	-	-	-	-
	1622	22°15'	154°58'	X (25)	?	-	-	-
	1750	22°22'	154°50'	X (150)	?	-	-	-
	1832	22°25'	154°46'	X (75)	?	-	-	-
3/27	1708	23°57'	151°58'	-	-	-	-	1 Whale
	1720	23°59'	151°56'	X (30)	Skipjack	4	Small	-
3/28	1215	24°11'	149°31'	-	-	-	-	1 Whale
4/1	1255	16°01'	148°44'	X (30)	-	-	-	-
	1540	15°39'	149°00'	X (40)	?	-	-	-
4/3	1614	19°49'	152°23'	X (150)	?	-	-	-
4/5	1345	23°25'	155°31'	X (60)	Skipjack	8	Large	-
	1615	23°05'	155°47.5'	X (40)	Skipjack	7	Medium	-
	1625	23°04'	155°48'	X (30)	?	-	Small	-
4/6	0730	21°37'	157°23'	X (40)	Skipjack	8	Medium	-
	0745	21°35'	157°25'	X (150)	Skipjack	8-12	Large	-
	0750	21°34'	157°26'	X (100)	?	-	Large	-
	0915	21°21'	157°36'	X (150)	?	-	Large	-

<sup>1/</sup> X = Bird flock.

( ) = Number birds in flock.

<sup>2/</sup> ? = Species not determined.

Table 21.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Charles H. Gilbert cruise 44

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface fish schools			Aquatic mammals
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	
4/30	1220	21°39'	158°18'	X (50)	? <sup>2/</sup>	-	Medium	-
	1010	21°30'	158°18.5'	X (25)	-	-	-	-
	1345	21°47'	158°20'	X (175)	?	-	Large	-
	1450	21°51.5'	158°22'	X (180)	Skipjack	6-8	?	-
5/1	1220	24°06'	158°45'	X (75)	?	?	?	-
	1310	24°05'	159°02'	-	-	-	-	-
5/2	1705	22°17'	161°06'	X (20)	-	-	-	-
5/3	0908	20°26'	162°33'	-	?	?	Small	-
5/5	1100	20°12.5'	162°44'	X (200)	?	?	Large	-
	1245	20°00'	162°54'	-	-	-	-	-
	1215	20°02'	162°51'	X (75)	?	-	Small	-
	1230	20°01'	162°53'	X (75)	?	-	Small	-
5/6	1505	21°18'	157°31'	X (45)	Skipjack	6	-	-
	1525	21°31'	157°29'	X (150)	Skipjack	-	-	-
	1720	21°42'	157°21'	X (150)	Skipjack	-	-	-
	1345	23°57'	154°16'	-	-	-	-	1 Porpoise
5/16	1150	21°11'	155°38'	-	-	-	-	-
	1305	21°01'	155°43'	X (100)	Skipjack	3-4	Medium	-
	1547	20°36'	155°54'	X (40)	?	-	Small	-
	1615	20°32'	155°56'	X (75)	?	-	Small	-
5/18	1820	20°15'	156°06'	X (50)	?	-	Small	-
	0823	20°06'	157°56'	X (50)	-	-	-	-
	1235	20°47'	157°54'	X (150)	?	-	Medium	-
	1350	20°54'	157°57'	X (160)	?	-	Medium	-
5/20	1125	21°03.5'	158°10'	X (100)	?	-	-	-
	1350	21°00'	158°14'	X (150)	?	-	-	-
	1730	20°40'	158°32'	X (40)	Skipjack	2	-	-
	0930	21°14'	157°56'	-	-	-	-	-
5/21	0910	19°02'	159°47'	-	-	-	-	20 Porpoise school
5/22	1755	20°49'	161°07'	X (75)	?	-	-	-
5/23	1200	22°35'	160°37'	-	-	-	-	-
	0710	22°21'	160°55'	X (200)	Skipjack	-	-	-
	0910	22°21'	160°46'	X (150)	Skipjack	15	Medium	-
	1215	22°36.5'	160°37'	X (50)	?	-	?	-
5/24	1232	24°29'	160°38'	X (30)	Skipjack	12-15	Small	-
5/25	1030	22°10'	158°04'	X (50)	Skipjack	3	Small	-
	0640	22°37'	158°28'	-	-	-	-	2 Whales
5/26	1410	21°36'	157°32'	X (40)	Skipjack	-	Small	-
	1435	21°43'	157°30'	X (50)	Skipjack	-	Small	-
	1720	21°50'	157°18'	X (200)	?	-	-	-
	1750	21°52'	157°13'	X (75)	?	-	-	-
5/27	1815	21°55'	157°10.5'	X (75)	?	-	-	-
	0725	23°08'	155°26'	X (50)	Skipjack	8-12	Medium	-
	0805	23°12'	155°26'	X (50)	?	Small	Small	-
	0855	23°18'	155°20'	X (30)	?	-	Small	-
	1320	23°45'	154°44'	-	-	-	-	(?) Porpoise school
5/31	0743	19°17'	156°04'	-	-	-	-	50 Porpoise school

<sup>1/</sup> X = Bird flock.

( ) = Number birds in flock.

<sup>2/</sup> ? = Species not determined.

Table 22.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Charles H. Gilbert cruise 45

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface fish schools		Aquatic mammals	
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	Whales Porpoise
7/7	1215	21°24'	158°12'	X (100)	Skipjack	Medium	Medium	
	1305	21°24'	158°16'	X (150)	Skipjack	4-5	Large	
7/8	1450	21°24'	158°16'	X (75)	Skipjack	6	Medium	
	0950	21°23'	158°17'	X (200)	Skipjack	22-25	-	
7/9	0820	21°09'	157°47'	X (75)	? <sup>2/</sup>	-	Medium	
	0843	21°08'	157°46'	X (100)	?	-	-	
	0910	21°07'	157°45'	X (250)	?	-	Medium	
	1010	21°02'	157°45'	X (500)	?	-	-	
	1050	21°01'	157°43'	X (500)	Skipjack	18	Medium	
	1205	21°02'	157°29'	-	-	-	-	
	1225	21°06'	157°38'	X (100)	?	-	-	
	1240	21°07'	157°38'	X (1000)	Skipjack	-	-	
	1610	21°10'	157°48'	X (150)	Skipjack	4	Medium	
	1705	21°06'	157°48'	X (75)	?	-	Small	
7/10	1725	21°04'	157°46.5'	X (1000)	?	-	-	
	1810	21°03'	157°46'	X (1000)	Little Tunny	-	-	
	1003	21°07'	157°44'	X (375)	?	-	Large	
	1032	21°06'	157°45'	X (100)	-	-	-	
	1040	21°05'	157°45'	X (350)	?	-	Large	
	1206	21°12'	158°14'	X (75)	Skipjack	20	Medium	
7/12	1206	21°12'	158°14'	X (75)	Skipjack	20	Medium	
	1316	21°18'	158°07'	X (30)	Yellowfin	-	Small	
7/13	0755	21°29.5'	158°16'	X (30)	Yellowfin	-	Small	
	0805	21°29.5'	158°18'	X (950)	?	-	Small	
	0925	21°26'	158°29'	-	Yellowfin	-	-	
	1135	21°19'	158°22'	X (50)	Skipjack	3-5	Medium	
7/14	1355	21°15'	158°16'	-	-	-	-	
	0925	21°15'	158°12'	X (25)	?	-	Small	
	0945	21°14'	158°13'	X (30)	?	-	Small	
	1128	21°26'	158°20'	-	-	-	-	200 FF*
	1148	21°29'	158°20'	X (40)	Skipjack	-	-	
	1315	21°27'	158°17'	X (40)	-	-	-	
7/17	1344	20°59'	158°12'	X (150)	Skipjack	15-20	-	
	0637	19°11'	159°50'	X (75)	-	-	-	300 FF*
7/18	0810	19°01'	159°58'	- (100)	-	-	-	
	1050	18°42'	160°19'	X (125)	-	-	-	
	1121	18°34.5'	160°18'	X (125)	-	-	-	
	1420	18°18'	160°37'	X (75)	?	-	Medium	
	1450	18°16.5'	160°39'	X (75)	?	-	Medium	
	1635	18°06'	160°50'	X (100)	?	-	-	300 FF*
	1745	17°59'	160°59'	X (300)	?	-	Large	

<sup>1/</sup> X = Bird flock.

<sup>2/</sup> ? = Species not determined.

( ) = Number birds in flock.

\* Flying Fish.

Table 22.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Charles H. Gilbert cruise 45 (con.)

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface fish schools			Aquatic mammals	
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	Whales	Porpoise
7/19	1848	18°06'	161°07'	X (75)	? <u>2/</u>	-	-		
	1917	18°08'	161°10'	X (100)	?	-	-		
	0730	19°12'	162°24'	X (200)	Skipjack	18	Large		
	1020	19°30'	162°42'	X (200)	?	-	Large		
	1045	19°32'	162°44'	X (3000)	Skipjack	18	Large		
	1125	19°36'	162°49'	X (100)	?	-	Medium		
	1245	19°45'	162°57'	X (150)	?	-	-		
	1335	19°50'	163°01.5'	X (100)	Skipjack	-	-		
	1400	19°53.5'	163°04'	X (200)	?	-	Large		
	1445	19°59'	163°08'	X (30)	?	-	Small		
	1530	20°04'	163°13'	X (100)	?	20	Large		
	1540	20°05'	163°13'	X (150)	?	-	Large		
	1701	20°14'	163°21'	X (100)	?	-	Large		
	1710	20°15.5'	163°22'	X (50)	?	-	Small		
	1754	20°21'	163°27'	X (75)	-	-	Medium		
7/20	0823	21°55.5'	164°50'	X (300)	?	-	Large		
	0932	22°09'	165°02'	X (30)	?	-	Small		
	1120	22°14'	165°07'	X (75)	?	-	Medium		
7/22	1358	24°08.5'	165°47'	X (75)	Skipjack	4-6	Small		
	1010	25°11'	162°43'	-	Skipjack	2-3	Small		
	1300	25°19'	162°15'	-	-	-	-		
7/24	1740	25°31'	161°31'	-	-	-	-		
	1835	23°22'	159°11'	X (15)	-	3-5	-		
	0700	22°04'	157°51'	-	Skipjack	-	-		School
7/25	1005	22°19'	157°25'	X (100)	Skipjack	30	Medium		
	1410	22°27'	157°12'	-	Skipjack	30	Medium		
	1345	23°46'	152°45'	X (7)	Skipjack	30	Medium		
7/27	1450	23°37'	152°44'	X (75)	Skipjack	-	Medium		
	0845	21°00'	152°40'	X (15)	Skipjack	-	Small		
	1315	20°17'	152°42'	X (50)	?	-	Small		
7/28	1550	19°42'	152°43'	-	-	-	-		
	1738	16°52'	154°19.5'	-	-	-	-		
	0708	17°21'	156°11'	X (100)	Skipjack	10-12	Medium		
7/29	0825	17°31'	156°16'	-	-	-	-		
	0833	17°32'	156°17'	X (150)	?	-	Large		
	1030	17°51'	156°26'	X (25)	?	-	Small		
7/30	1108	17°57'	156°29.5'	X (75)	?	-	Small		
	1217	18°08'	156°34.5'	X (15)	?	-	-		
	1230	18°10'	156°36'	X (100)	?	-	-		
7/29	1526	18°37'	156°49'	X (50)	?	-	Small		
	1600	18°42'	156°51.5'	X (200)	?	-	Large		
	1625	18°45'	156°53'	X (150)	?	-	Large		

<sup>1/</sup> X = Bird flock.

<sup>2/</sup> ? = Species not determined.

( ) = Number birds in flock. \* Flying Fish.

Table 22.--Record of surface fish school, bird flock, and aquatic mammal sightings,  
Charles H. Gilbert cruise 45 (con.)

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface fish schools			Aquatic mammals	
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	Whales	Porpoise Other
8/2	0900			X (75)	? 2/	40	Small		
	0920			X (500)	Yellowfin	40	Small		
	1050			X (35)	?	-	Small		
	1113			X (75)	Yellowfin	50	Small		
	1436			X (50)	?	-	Small		
	1620			X (40)	-	-	-		
8/3	1630			X (500)	Skipjack	6	Large		
	0910			X (350)	?	-	Large		
	1143			X (200)	Skipjack	10	Large		
	1455			X (100)	?	-	-		
	1603			X (300)	Skipjack	-	Large		
	0806			X (50)	?	-	-		
8/4	0810			X (50)	?	-	-		
	0920			X (50)	?	-	-		
	0958			X (50)	Skipjack	-	Small		
	1114			X (50)	Skipjack	25	Large		
	1125			X (50)	?	-	Large		

<sup>1/</sup> X = Bird flock.

( ) = Number birds in flock.

<sup>2/</sup> ? = Species not determined.



Table 23.--Record of surface fish school, bird flock, and aquatic mammal sightings  
Charles H. Gilbert cruise 46

Date, 1959	Time LZT	Position		Bird flock sightings <sup>1/</sup>	Surface Fish Schools			Aquatic mammals
		Lat. N.	Long. W.		Species	Size of fish (lbs.)	Size of school	
9/29	1130	20°32'	157°30'	X (200)	? <sup>2/</sup>	-	-	-
10/1	0825	17°35'	155°16'	X (50)	Dolphin	-	-	-
10/3	1620	20°46'	153°04'	X (30)	-	-	-	-
10/7	0645	21°13'	157°42'	X (36)	-	-	-	-
10/8	0920	21°03'	157°27'	X (50)	?	-	-	-
	1055	20°55'	157°25'	X (40)	?	-	-	-
	1115	20°52'	157°27'	X (70)	?	-	-	-
	1510	20°59'	157°24'	X (200)	?	-	Medium	-
	1604	20°51'	157°30'	X (150)	?	-	-	-
10/9	0810	18°59'	158°52'	X (50)	-	-	-	-
	0930	18°50'	159°02'	X (30)	-	-	-	-
	0945	18°49'	159°04'	X (30)	-	-	-	-
	1000	18°47'	159°06'	X (150)	Skipjack	10-18	Large	-
	1450	18°22.5'	159°34'	X (30)	Skipjack	-	Small	-
	1510	18°20'	159°34'	X (30)	?	-	Small	-
	1810	18°05'	159°54'	X (200)	Skipjack	Mixed	Large	-
	1810	18°05'	159°54'	X (200)	?	-	-	-
10/11	1330	16°34'	162°10'	X (50)	?	-	-	-
	1721	16°53'	162°43'	X (150)	Skipjack	10-15	Large	-
10/12	1404	18°46'	164°15.5'	X (75)	?	-	-	-
10/13	0915	16°45'	166°17'	-	-	-	-	1 Whale
	0957	16°40'	166°23'	X (18)	-	-	-	-
10/14	1050	19°58'	167°22'	X (16)	-	-	-	-
10/15	1035	20°14'	164°07'	X (15)	-	-	-	-
10/16	1130	22°38'	161°57'	X (110)	-	-	-	-
10/17	1125	22°02'	160°02'	-	-	-	-	50 Porpoise
	1416	22°10'	159°48'	-	-	-	-	School porpoise
	1425	22°13'	159°47'	X (100)	Yellowfin	-	Medium	-
	1530	22°16'	159°45.5'	X (250)	-	-	-	-
	1006	21°31'	158°18'	-	-	-	-	8 Porpoise

<sup>1/</sup> X = Bird flock.

( ) = Number birds in flock.

<sup>2/</sup> ? = Species not determined.

Table 24.--Summary of longline catch data

Cruise	Station	Date, 1959	Position		Skipjack	Yellowfin	Bigeye Tuna	Dolphin	Mahoe	Striped Marlin	Black Marlin	Marlin	Sailfish	Shortnosed Spearfish	Great Blue Shark	Silky Shark	Whitetip Shark	*Mackerel Shark	Shark (Sp.)	Lancet Fish	Puffer	Total
			Lat. N.	Long. W.																		
Hugh M. Smith 50	4	1/13	12°50.5'	149°41'		2		5	1			2			2	1	1					14
	6	1/14	15°08'	149°37'				2	1									1				4
	8	1/15	17°16'	149°17.5'			3	2														5
	10	1/16	16°39'	147°11'				16				1		2	1							20
	14	1/20	21°02'	148°00'						2												2
	16	1/21	23°02'	148°03'				7											1			8
	18	1/22	24°32'	149°15'	3			11		1					1							16
	23	1/26	22°47'	153°05'			1	2	1						1					1		6
	29	2/2	18°48'	165°49'				3		1					1							5
	32	2/4	16°23'	170°03'																1		1
	38	2/9	19°10'	160°03'			2			3					3							8
				TOTAL	3	2	6	48	3	7		3	2	9	1	1	1	1	1	1	1	89
Hugh M. Smith 51	6	3/13	18°23.5'	147°31'		3	3	5	1					3					2			17
	9	3/15	14°48'	150°13'		1	3	5		2												11
	18	3/23	20°29'	161°06'			1	3											5			9
	25	3/31	19°03'	146°34'			1	1		1										1		4
	28	4/2	16°24'	150°22'				3														3
	29	4/4	21°47'	153°25'			1	2		1									3			7
				TOTAL		4	9	19	1	4			3						10	1		51
Charles H. Gilbert 44	5	5/2	22°27'	161°02'		1			1	2												4
	8	5/4	19°07'	160°56'						1												1
	12	5/11	17°17.5'	151°29'						1	1				1		2					5
	16	5/14	22°19'	154°25'													1					1
	18	5/15	24°04.5'	154°19'				1	1													2
				TOTAL		1		1	2	4	1			1		3						13
Charles H. Gilbert 46	12	10/2	17°00'	153°25'		1	2	1						2		2				1		9
	15	10/4	22°52'	152°57'				2		1				1		1						5
	20	10/10	16°25'	160°15'	1			1				2		1		1						6
				TOTAL	1	1	2	4		1		2		4		4				1		20

\* Not positively identified. Described in Longline Fishing Log as having blue pointed snout, large teeth and dark spots on ventral surface.

Table 25.--Summary of surface trolling catch data

Cruise	Date, 1959	Time LZT	Position		Catch Species	Catch Number
			Lat. N.	Long. W.		
<u>Hugh M. Smith</u> 50	1/10	0940	18°34'	155°40'	dolphin	1
	1/10	1310	18°12'	155°21'	"	1
	1/11	0820	16°03'	153°30'	"	1
		0825	16°02'	153°28'	bigeye	1
	1/13	1000	12°50'	149°38'	dolphin	1
		1215	12°51'	149°39'	"	1
	1/15	1225	17°14.5'	149°00'	"	1
	1/16	0900	16°43'	147°20.5'	dolphin	1
	1/20	0925	21°02'	148°00'	"	1
	1/24	1400	19°09'	153°09'	"	1
	1/27	0925	20°40.5'	154°22.5'	"	1
	1/29	0900	18°00'	158°06'	"	1
	2/6	1745	14°24'	167°30.5'	"	1
	2/7	0930	14°40'	164°0.8'	"	1
		1610	15°16'	163°36'	"	1
<u>Hugh M. Smith</u> 51	3/6	1705	23°41'	155°11'	"	1
		1800	23°47'	155°08'	"	1
	3/14	1150	15°27'	148°39'	"	3
	3/16	0925	16°55'	152°13.5'	"	1
					wahoo	2
	3/26	1400	22°05'	155°12'	dolphin	1
		1530	22°12'	155°04'	"	1
	3/27	1530	23°51'	152°11'	"	2
	3/29	0950	23°32'	147°29'	"	1
<u>Charles H. Gilbert</u> 44	5/1	1310	24°05'	159°02'	"	1
	5/5	1245	20°00'	162°54'	"	2 <u>1/</u>
	5/16	0945	21°30'	155°29.5'	"	1
	5/20	1155	21°04'	158°09'	"	2
	5/23	1040	22°25'	160°36.5'	wahoo	1
<u>Charles H. Gilbert</u> 45	7/23	1300	25°19'	162°15'	dolphin	- <u>2/</u>
	7/25	0700	22°04'	157°51'	"	1
	7/28	1500	19°42'	152°43'	"	1
<u>Charles H. Gilbert</u> 46	10/1	0830	17°36'	155°17'	"	1
		1100	17°35'	155°04'	"	2
	10/13	1812	17°32'	167°01'	"	2
	10/15	1525	20°38'	163°39'	"	1
		1555	20°42'	163°31'	"	1

1/ Sighted from vessel, not caught.2/ "A few," sighted from vessel near floating log.

Table 26.--Summary of skipjack tagging

Cruise	Date, 1959	Position		Number tagged	Average size (cm.)
		Lat. N.	Long. W.		
<u>Hugh M. Smith</u> 51	3/22	22°48'	161°45'	11	42.7
	3/22	22°21'	161°35'	40	44.4
	3/23	20°30'	161°31'	5	63.7
<u>Charles H. Gilbert</u> 44	5/23	22°20'	160°55'	7	61.1
	5/25	22°10'	158°04'	29	41.6
<u>Charles H. Gilbert</u> 45	7/25	22°31'	157°03'	76	76.4
	8/19	21°18'	158°13'	14	47.8
<u>Charles H. Gilbert</u> 46	10/9	18°41'	159°14'	54	65.0
				236	

Table 27.--Common and scientific names of fishes reported

<u>Common Name</u>	<u>Scientific Name</u>
Mackerel Shark	<u>Lamna ditropis</u> (Hubbs and Follett)
Great Blue Shark	<u>Prionace glauca</u> (Linnaeus)
Silky Shark	<u>Eulamia floridanus</u> (Bigelow, Schroeder, and Springer)
Whitetip Shark	<u>Pterolamiops longimanus</u> (Poey)
Lancet Fish	<u>Alepisaurus</u> sp.
Flying Fish	<u>Exocoetidae</u>
Skipjack	<u>Katsuwonus pelamis</u> (Linnaeus)
Bigeye Tuna	<u>Parathunnus sibi</u> (Temminck and Schlegel)
Yellowfin	<u>Neothunnus macropterus</u> (Temminck and Schlegel)
Wahoo	<u>Acanthocybium solandri</u> (Cuvier and Valenciennes)
Shortnosed Spearfish	<u>Teptrapturus angustirostris</u> Tanaka
Marlin	<u>Makaira</u> sp.
Black Marlin	<u>Istiompax marlina</u> (Jordan and Hill)
Striped Marlin	<u>Makaira audax</u> (Philippi)
Sailfish	<u>Istiophorus orientalis</u> (Temminck and Schlegel)
Dolphin	<u>Coryphaena hippurus</u> Linnaeus
Puffer	<u>Lagocephalus lagocephalus</u> (Linnaeus)



MBL WHOI Library - Serials



5 WHSE 01523

